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1954--1973

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New Jersey's Undergraduates

1954-1973

MARSHALL P. SMITH, ***Director***

Survey of Future Facilities in Higher Education
for New Jersey

The New Jersey State
Board of Education

FREDERICK M. RAUBINGER,
Commissioner of Education

TRENTON, 1956

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PREFACE

Pursuant to its powers under the laws of the State of New Jersey, the State Board of Education, at its February 5, 1955 meeting, adopted the following resolution:

> WHEREAS: It is one of the responsibilities of the State Board of Education as outlined in 18:2–4 to survey higher education and to report to the Legislature concerning the needs for higher education and the facilities therefor, and to recommend to the Legislature procedures and facilities to meet such needs; and
>
> WHEREAS: The phenomenal growth in the number of persons under 18 years of age indicates that the colleges of this state and other states will face a problem of sharply increased enrollments which will undoubtedly tax existing facilities beginning in 1960 and continuing with increasing impact in the following decade; therefore,
>
> *Be It Resolved:* That the Commissioner of Education be authorized to draw up a plan for a study of the effect of increasing enrollments and their relationship to future opportunities for New Jersey youth to gain admission to institutions of higher learning, and to present such a plan to the State Board of Education at the earliest opportunity.

The survey authorized in the resolution of the State Board of Education was established by the Commissioner of Education as the Survey of Future Facilities in Higher Education for New Jersey on April 1, 1955. Dr. Marshall P. Smith, Associate Professor, Trenton State Teachers College, was named Director of the Survey for the period June 16, 1955, to June 30, 1956.

It was soon discovered that limitations of staff and budget would restrict the study to an examination of the demand and facilities for full-time undergraduate education in the next two decades. The Survey, therefore, does not pretend to be a comprehensive study of post-high school education. It is a preliminary study from which other studies should develop.

This volume is the major report of the Survey of Future Facilities in Higher Education for New Jersey. A companion booklet, titled *The Closing Door to College,* is being published as a summary. Other brief reports of material developed during the course of the survey will be made. These reports will consider such topics as: student's preferences with regard to college, student migration, residence hall financing, and nursing education—demand and facilities.

All publications of the survey will be available on request to the New Jersey Department of Education, Trenton 25, New Jersey.

Since the study was considered as exploratory, an Advisory Commission of professional educators who were citizens of New Jersey was formed to advise on the direction and progress of the study. The help of the members of the Advisory Commission, whose names are listed on the inside cover, was invaluable to the Director of the survey. Their generosity in giving their time and the benefit of their experience at the frequent meetings of the Commission

is a measure of their devotion to the welfare of the young people of New Jersey.

In the pursuit of information for the survey, it was found necessary to enlist the help of many persons and many agencies.

Appreciation is extended to the Presidents and other officers of the 79 out-of-state colleges who gave their time and thought to the problems of New Jersey students, either in personal conferences with the Director of the study or in response to written questions; to the chief state school officers of most of the states in the nation for their comments on restrictions on out-of-state enrollments; to the Superintendents of Schools, the Diocesan Superintendents, and the secondary school principals, head masters, and guidance officers for their cooperation in gathering data concerning student college-going intentions.

Particular thanks are due to the Presidents of New Jersey colleges for their help in the study. They were willing at all times to consult on problems of future enrollments, and were responsive to requests for their assistance.

Members of the various departments of the State government, Conservation and Economic Development, Health, Treasury, and Labor and Industry were most cooperative in giving information and advice on aspects of the study. On all occasions the members of the Department of Education spared neither time nor effort in support of the survey.

Without the wealth of material and help available from the United States Office of Education and United States Bureau of the Census the study could not have been undertaken. The prompt and complete information they supplied was invaluable.

Thanks are expressed to the holders of copyright for permission to use the various quotations in the text.

The help of certain individuals should be specifically acknowledged. Frank B. Stover, Assistant Commissioner of Education, was actively engaged in the study throughout its development and served as Chairman of the Advisory Commission. His contributions to the project were of first importance. Philip A. Cowen, Associate Coordinator of Research, State University of New York, generously gave valuable guidance and an abundance of information to the development of the study. Robert H. Morrison, formerly Assistant Commissioner of Education for Higher Education and now Dean of the School of Education, Seton Hall University, helped plan the survey and guide its progress. Earl E. Mosier, Assistant Commissioner of Education for Higher Education, took personal and sustaining interest in the project. S. David Winans, Director, Bureau of Research, Department of Education, was always generous with helpful suggestions and crucial information. Armida Gualfetti, the Director's secretary, performed her exacting duties with care and patience.

FREDERICK M. RAUBINGER,
Commissioner of Education.

CONTENTS

PREFACE 3

INTRODUCTION 7

CHAPTER I—New Jersey—A Dynamic State 9

New Jersey, highly urbanized, wealthy, and industrious, will increase its college-age population by over one hundred percent in seventeen years.

CHAPTER II—How Many New Jersey Young People Will be Applicants for Full-time Undergraduate Higher Education? 21

Social forces now apparent encourage more young people to go to college. The number of New Jersey residents in full-time undergraduate study is expected to increase three times by 1973.

CHAPTER III—What College Facilities Will be Available for Prospective New Jersey Students? 44

Because existing colleges, with all proposed exapnsion plans, will be unable to absorb the demand, deficits equalling almost four times the present facilities of all New Jersey colleges will develop if additional facilities are not provided.

CHAPTER IV—What Programs are Proposed to Handle the Expected Enrollments? 60

Proposals are diverse and comprehensive. Solutions will require the cooperation of all agencies.

CHAPTER V—Can New Jersey Afford Higher Education for Its Young People? 69

New Jersey citizens can and do afford higher education. In the future the cost will be high but not overwhelming. Higher education should be considered an investment in the future.

APPENDIX 1. New Jersey Colleges, enrollments 1954 and projected 79

APPENDIX 2. New Jersey Colleges, bachelor's and first professional degrees 82

APPENDIX 3. Note on enrollment ratios 83

APPENDIX 4. Tuitions at forty-eight state universities 84

BIBLIOGRAPHY 85

INDEX 91

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INTRODUCTION

This report may be considered an introduction to the problems New Jersey will face in higher education during the next two decades. It deals fully with the demand for full-time undergraduate study toward a bachelor's degree. Other aspects of higher education may need to be studied in detail in the future.

Although this study is limited, New Jersey cannot use the need for further research as an excuse to delay immediate action to provide college facilities for the young people of the state. By 1958 the shortage of facilities will be serious; by 1963 it will be critical. Young people are already finding it difficult to be accepted at college at a time when the number of high school graduates is relatively low. By 1963 there will be some 64,000 New Jersey young people seeking undergraduate work in New Jersey colleges which handled only 22,000 in 1954.

Three factors make New Jersey's problem especially difficult.

(a) The state is growing at an unprecedented rate, especially in numbers of children.

(b) The proportion of New Jersey's college-age-population going to college, relatively low in the past, is likely to increase sharply.

(c) New Jersey has long depended on out-of-state colleges to handle a major part of its higher education, a dependency which cannot continue.

These three forces will make the probable future enrollments within the state larger than most people have anticipated. For every New Jersey student in a New Jersey college in 1954-1955 there will probably be six in 1973. This means roughly six times the facilities, six times the number of teachers, six times the budgets, six times the graduates.

Two major assumptions underlie the predictions in the study:

(a) That the United States will remain at peace and in a state of reasonable prosperity;

(b) That the State of New Jersey will remain devoted to freedom of inquiry and equality of educational opportunity.

Given these two assumptions, it is believed that the predictions made in the report are reasonable. New Jersey is apparently entering a revolutionary period in higher education—a period which will raise the demand for higher education to a new order of magnitude, a period which poses problems that require the serious and immediate attention of New Jersey citizens.

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CHAPTER I

New Jersey—A Dynamic State

Summary

Introduction—It is necessary to note some aspects of New Jersey's social and economic development before the problems of undergraduate higher education are considered.

I. New Jersey is the most highly urbanized state in the nation with 86.6 percent of the population living in urban areas.

II. New Jersey's industry is rich, diverse, and highly technical. New Jersey is:

Sixth in the nation in percentage of population employed in manufacturing.

Seventh in the nation in value of manufactures.

Second in the number of industrial research laboratories.

III. New Jersey's citizens are highly trained, wealthy, and educated. They are:

High in professional skills.

Fourth among the states in income per capita.

Above the national average in education.

Seeking homes and communities for themselves and their children.

IV. New Jersey's population is increasing sharply and the college-age-population shares the increase. This is caused by:

Birth-rates for New Jersey at an unprecedented high.

Net in-migration accounting for almost as many citizens as natural increase.

As a result:

New Jersey's total population is expected to increase 30 percent by 1970.

The college-age-population of New Jersey will increase from 239,000 in 1954 to 517,000 in 1973, an increase of 116 percent.

Conclusion—New Jersey, a vigorous, wealthy, industrious state, is in a population explosion which will vastly increase its college-age-population.

Introduction—Undergraduate higher education is one of the many institutional forms developed by a society to promote the welfare of its members. A society's economic structure, its political patterns, its social welfare programs, its media of communication—all develop in a democracy through the efforts of citizens to live their own lives happily and to contribute to the welfare of others. The forms and changes of these institutions, higher education among them, express and determine the underlying dynamic processes of the society. The problems of undergraduate higher education must be considered in the light of New Jersey's development.

I New Jersey Is the Most Highly Urbanized State in the Nation

The U. S. Bureau of the Census (ref. a) reports that 86.6 percent of the population of New Jersey lives in urban areas. In an urban complex all people are interdependent and all functions are specialized. The farther a society moves from the individual self-sufficiency of rural life the more demand there is for a high degree of specialization. There were few professional traffic managers in 1860, few social workers, few sanitary engineers, few public health specialists, few criminologists, few psychiatrists. The need for education was limited. The modern urban community depends on the specialist and develops the education to train him.

New Jersey stands between the financial and the political capitals of the nation. John E. Brush (1956, p. 3) points out that "New Jersey is in a favored location for urban-industrial development because it is situated in the mid-portion of the main urban belt of North America. . . . The state serves as a transportation corridor between many of the cities in this belt. It receives also the traffic moving between New York or New England and the South as well as much of the traffic to and from the Middle West. New Jersey is truly on the 'main line' of America for across the state moves what is undoubtedly the heaviest volume of inter-city rail and highway traffic anywhere on the continent. New Jersey's geographic position is one of the most powerful influences underlying its growth and concentration of population."

II New Jersey's Industry Is Rich, Diverse, and Highly Technical. New Jersey Is:

Fifth in the nation in percentage of population employed in manufacturing.

John E. Brush (ibid., p. 44) states, ". . . Manufacturing is the foundation of New Jersey's occupational structure and the key to the state's population growth. Nearly 740,000 persons, or 37.7 percent of the employed population residing in New Jersey at the time of the 1950 census, were reported to be in manufacturing. . . . Only Michigan, Connecticut, Rhode Island, and New Hampshire exceeded New Jersey's percentage in manufacturing."

The U. S. Bureau of the Census (ref. c, Table 3) reported that, in 1953, over 850,000 New Jersey citizens were employed in manufacturing. New Jersey was sixth among the states in the percent of the whole population so employed.

Seventh in the nation in value of manufactures.

John Cunningham (1954, p. 4 ff.) reports that this state is seventh in the nation in industrial output. It ranks, Cunningham says, first in the production of chemicals and among the top five in electrical machinery, instruments and related products, petroleum and coal products, rubber products, wearing apparel, and tobacco manufactures. "New Jersey is among the first ten states in stone, clay and glass products, food and kindred products, textiles, primary metal industries, fabricated metal industries, paper products, printing and publishing, leather products and machinery.

". . . Diversity is the key to the state's industrial success. It is not surprising to find that of the different categories of industrial pursuits listed by the National Census of Manufacturers, 90 percent of them are represented in New Jersey's 325 different industrial classifications."

Much of New Jersey's industry depends on working raw materials which come from outside the state. Since New Jersey is poor in almost every resource but brains and skill, the state's economic strength is in taking inexpensive raw materials and converting them into items of high value.

The Bureau of the Census (ref. c. Table 3) shows New Jersey to be the seventh state in the nation in value added through manufacturing, the 1953 total being almost six and a half billion dollars.

Standing at the junction of the rivers of freight flowing into the metropolitan complex, New Jersey is in a uniquely favorable position to develop highly technical and highly diversified industry. It is an enterprise state.

First in concentration of industrial research laboratories.

A survey by the U. S. Office of Education (ref. g) revealed that New Jersey, in 1950, had 341 industrial research laboratories, a number exceeded only by New York with 521. If New York, for its size in 1950, had the same proportion as New Jersey it would have had over a thousand laboratories. New Jersey may be considered the research capital of the nation.

Business Week (1949) spoke of "New Jersey's Semicircle of Science" and said: "In it lie more than 400 facilities where some kind of research and development is underway. In this concentrated center, more than 10% of the nation's research thrives. At the very least, the outlay exceeds $150-million annually."

Employment in research holds great promise according to the New Jersey Department of Labor and Industry (1956) which states, "Perhaps no new employment activity promises more for the future of New Jersey's economy than does research. While the difficulty in distinguishing between research and the testing and quality control adjuncts to manufacturing makes it almost impossible to accurately measure employment in research, national surveys indicate that New Jersey, despite its small size, ranks close to national leadership in both commercial and non-profit research."

III New Jersey's Citizens Are Highly Trained, Wealthy, and Educated. They Are:

High in professional skills.

The following tables present the occupational patterns of New Jersey's citizens. They show a remarkable picture.

The U. S. Office of Education (ref. g, p. 9) reported that "More than half of the scientists and engineers may be found in five states—New York, New Jersey, Pennsylvania, Illinois, and Ohio." In the same publication are listed

the numbers of industrial research laboratory personnel in 1950 in all the states by states. New Jersey's position in all categories given is shown in Table I-1.

TABLE I-1

Industrial Research Laboratory Personnel—New Jersey's Rank and Percentage of All, 1950

Area—Professional	Rank in Nation	Percentage of All in U. S.
Biologists	2	14.8
Chemists	1	14.8
M.D.'s in Research	2	18.5
Engineers	2	12.6
Geologists	Lower than 5	1.1
Metallurgists	2	12.2
Physicists	5	10.3
Psychologists	Lower than 5	1.5
Unclassified	5	7.0
Total Professional	2	12.9
Supporting Personnel	2	13.9
No. of Laboratories	2	10.3

Source: U. S. Office of Education, ref. g. (calculated).

In 1950 New Jersey had only 3.2 percent of the nation's population, but it had over four times this proportion of the nation's industrial laboratory personnel. In concentration of research personnel relative to population size, New Jersey was easily the first state in the nation.

Table I-2 shows the shifts in the occupational distribution of New Jersey citizens from 1940 to 1950 as compared with that of the nation. Starred areas showed increases in proportions in professional, managerial, clerical, craft, and operating employment. The trends illustrate the dynamics of the state.

TABLE I-2

Distribution of Civilian Employees by categories in New Jersey and the United States for 1940 and 1950

	New Jersey Distribution		United States Distribution	
	1940	1950	1940	1950
Total Employed	100.0%	100.0%	100.0%	100.0%
Professional, technical, and kindred workers ..	9.4	10.1*	7.9	8.7*
Farmers, farm managers, and kindred workers	1.4	1.1	11.5	7.7
Managers, officials, and proprietors, except farm	8.9	10.2*	8.1	8.9
Clerical and kindred workers	13.7	14.9*	9.7	12.3
Sales workers	7.3	6.7	6.8	7.0
Craftsmen, foremen, and kindred workers	14.6	15.8*	11.5	13.8
Operatives and kindred workers	23.7	24.1*	17.9	19.8
Private household workers	3.9	2.1	4.6	2.5
Service workers, excluding private household ..	7.3	7.1	7.1	7.6
Farm laborers, family unpaid	.2	.2	2.6	1.6
Farm laborers and foremen, except unpaid	1.3	1.0	4.3	2.6
Laborers, except farm and mine	7.4	5.5	7.0	6.1
Occupation not reported	1.2	1.0	.9	1.3

Read as follows: Professional, technical, and kindred workers in 1940 were 9.4% of the New Jersey employed; in 1950 they were 10.1%; in 1940 they were 7.9% of the U. S. employed; in 1950 they were 8.7%. Starred areas show increases.

Source: U. S. Bureau of the Census, ref. a, Part 1, Table 54; Part 30, Table 29.

New Jersey's "consumption" of trained personnel may be compared with "production" in these fields in Table I-3. This table shows New Jersey's percentage of the nation's workers in various employment areas and college degrees granted in those areas. It may be seen immediately that the state's production at the first professional degree level lags behind its consumption in every area listed except clergymen and religious workers. On the graduate level it lags in all but three listed categories of engineers.

TABLE I-3

Trained Personnel in Certain Fields in New Jersey and the Education of Personnel in these Fields in New Jersey as Percentages of all in the United States

(1)	(2)	(3)	(4)
		Degrees Granted in Fields in N. J. as Percent of Nation, 1954	
Total Population—N. J. Percent of U. S.—3.22	Trained Personnel N. J. Percent of Nation, 1950	Bachelors & First Prof.	Graduate
Accountants and auditors	5.1	4.3	0
Architects	4.3	1.0	3.7
Chemists	9.8	3.3	1.9
Clergymen and religious workers	2.5	3.4	2.7
Dentists	4.1	0	0
Engineers	6.3	2.3	6.6
Chemical	10.8	2.9	7.2
Civil	3.8	1.3	2.6
Electrical	8.5	2.0	8.6
Industrial	6.2	.5	26.2
Mechanical	6.8	2.3	3.7
Other	5.3	3.6	1.41
Lawyers	4.2	1.4	1.1
Natural Scientists (other)	3.4	2.4	2.9
Optometrists	3.6	0	0
Pharmacists	3.1	2.4	1.8
Physicians and surgeons	3.7	0	0
Farmers, owners, tenants	.5	1.3	2.3

Read as follows: Accountants and auditors: In 1950 New Jersey had 5.1% of all accountants and auditors. In 1954 New Jersey colleges granted 4.3% of all first degrees in accounting and no graduate degrees in this field.

Sources: Column (2), U. S. Bureau of the Census, ref. g, Part 1, Table 124; Part 30, Table 173.

Columns (3) and (4), U. S. Office of Education, refs. c and d.

Fourth among the states in income per capita.

New Jersey is wealthy and gives every appearance of becoming wealthier. As of 1954, according to the U. S. Department of Commerce (ref. a), the per capita income of New Jersey residents was $2,219, the national average was $1,770. New Jersey was the fourth highest among the states, topped only by Nevada, Delaware, and Connecticut, and also exceeded by the District of Columbia. Table I-4 shows the income per capita trends of New Jersey and certain other states since 1948. It is clear that the trend of New Jersey's income is quite steadily up.

TABLE I-4

Per Capita Income of New Jersey and Certain Other States 1948-1954. National Average for Each Year Equals 100

	New Jersey	Connecticut	Delaware	New York	Pennsylvania
1948	116	123	124	127	102
1949	117	123	137	127	103
1950	120	128	144	126	105
1951	121	133	138	122	106
1952	122	135	137	121	107
1953	125	135	137	120	106
1954	125	133	134	122	101

Source: U. S. Department of Commerce, ref. a (calculated).

Above the national average in education and gaining.

Table I-5 shows the gain between 1940 and 1950 in percentages that have attended high school and college.

TABLE I-5

Years of School Completed by persons 25 years Old and Over, 1940 and 1950, by Percent of Population (Based on 20 Percent Sample)

	New Jersey		United States
	1940	1950	1950
4 years high school	13.4	21.5	20.2
1 to 3 years college	4.0	5.6	7.2
4 or more years college	5.0	6.8	6.0

Source: U. S. Bureau of the Census, ref. a, Part 1, Table 44; Part 30, Table 20.

Note the sharp gain from 1940 to 1950 in high school education. This gain will be reflected in increased college education for the children of these graduates.

In New Jersey more 14-17-year-olds remain in school. Table I-6 shows how enrollments in two age groups, having passed the national average, continue to move upward.

TABLE I-6

Percentage of Two Age Groups Enrolled in School, 1910-1950, New Jersey and the United States

	14-15 year olds		16-17 year olds	
	U. S.	N. J.	U. S.	N. J.
1910	75	70	43	31
1920	80	72	43	30
1930	89	91	57	48
1940	90	95	69	70
1950	93	96	74	78

Source: U. S. Bureau of the Census, ref. a, Part 1, Table 43; Part 30, Table 19.

Many of the young people now in high school will be the first generation of their families to go to college. A survey study (Survey Study c.) showed that 45 percent of the students who intended to go to college in the fall of 1956 were from families where neither parent had been to college. For at least 10 percent of the students neither parent had finished high school. In only 11 percent of the families had both parents graduated from college.

John C. Hutchinson (1955) reported that 78 percent of the parents of the class of 1959 at Newark State Teachers College had no college work, while 12 per cent had completed college.

For the class of 1957 at Montclair State Teachers College, Orpha M. Lutz (1953) reported that 77 percent of the parents had had no college; 8.5 percent of the parents had graduated from college.

Members of the class of 1957 at Glassboro State Teachers College (1953) reported that 71.7 per cent of their fathers had no college work, while 17.9 percent had graduated from college.

Seeking homes and communities for themselves and their children.

The attractive New Jersey suburban areas are drawing to the state great concentrations of citizens from all over the country. The new residential developments in New Jersey, with their neat homes and proud schools teeming with children, complement the industry of the state. Industrial New Jersey depends on a constant flow of bright, well-educated young people. Residential New Jersey has in its children one of the largest concentrations of potentially skilled citizens in the country. New Jersey has an unexampled opportunity to promote its potential growth by investing in the future of its young people who are the state's major resource.

IV New Jersey's Population Is Increasing Sharply and the College-Age-Population Shares the Increase

New Jersey has grown, and is growing, faster than its neighboring states and faster than the nation as a whole.

Among 13 states in 1790 New Jersey was ninth in population; among 48 states in 1955 it was eighth. From 1850 to 1900 the nation grew by about three times, New Jersey increased by over four. From 1900 to 1950, the nation doubled in population while New Jersey more than tripled. From 1950 to 1955 the civilian population of the nation increased by 8.5 percent, New Jersey's increased by 11.8 percent.

Table I-7 shows the proportion of the nation's population in each of several states for the period 1850 to 1955. New Jersey's growing edge is clearly seen.

TABLE I-7

Percentages of the National Population, Several States, 1850-1955

Year	N. J.	N. Y.	Pa.	Mass.	Conn.
1850	2.11	13.36	9.97	4.29	1.60
1870	2.35	11.36	9.13	3.78	1.39
1890	2.30	9.54	8.35	3.56	1.19
1910	2.76	9.91	8.33	3.66	1.21
1930	3.29	10.25	7.84	3.46	1.31
1950	3.21	9.84	6.97	3.11	1.33
1955*	3.31	9.89	6.86	3.06	1.38
Change—1850-1955	(+1.20)	(—3.47)	(—3.11)	(—1.23)	(—0.22)

*1955 civilian population only.

Source: Bureau of the Census, refs. a and b, No. 129.

Note that New Jersey's percentage of the nation's population gained from 1950-1955 about the same amount as that of Pennsylvania declined. In 1850 Pennsylvania was over four times the size of New Jersey, and Massachusetts was twice as big.

Today Pennsylvania is only twice as big as New Jersey, and Massachusetts is smaller.

This state's growth in the past five years has resulted almost equally from two factors: high birth-rates and high in-migration.

1—Birth-rates for New Jersey are at an unprecedented high.

Each year since 1952 there have been more than twice as many live births as there were in 1936—the birth-year group which entered college in 1954. Table I-8 shows the birth-year groups for certain years and the birth rates per 1,000 for those years.

TABLE I-8

Birth Rates and Live Births in New Jersey for Various Years

Year Born	Number of Live Births	Births per 1,000 Population	Year Youth Would Enter College
1932	61,200	15.0	1950
1936	54,100	13.2	1954
1940	59,300	14.3	1958
1944	75,700	18.2	1962
1948	97,300	20.6	1966
1952	110,200	22.3	1970
1953	112,500	22.5	1971
1954	118,300	23.3	1972
1955	121,000	n.a.	1973

All figures rounded to nearest hundred.

n.a. = not available.

Source: N. J. Department of Health, ref a.

It may be that changes are occurring in the New Jersey family pattern as they are in the rest of the country. The editors of Fortune Magazine (1955, p. 49) say that, "Americans have not only been having more children, they have been having more second, third, and fourth children. While the middle and higher-income families, who traditionally did most of the family planning have been planning for more children, the huge rural and immigrant low-income families—of more than six children, say—have been slowly disappearing. The middle classes, at least, are approaching a new norm; and it seems to center around families with four or more children."

While there has been a huge increase in births, the death rate per 1,000 according to the New Jersey Department of Health (ref. a) has stayed remarkably steady; in the period 1932 to 1954, inclusive, the low was 10.0 in 1949, the high was 11.8 in 1944. In this present period of growth, New Jersey is gaining between fifty and sixty thousand people a year by natural increase (births minus deaths).

2—Migration from other states accounts for almost as many people as natural increase.

Table I-9 shows that the Bureau of the Census estimates that New Jersey gained from 1950 to 1954 between fifty and fifty-five thousand citizens per year by migration.

TABLE I-9

Components of Total Population Change in New Jersey, April 1, 1950, to July 1, 1954

April 1, 1950 Total Population	1950-1954 Net Migration	1950-1954 Natural Increase	July 1, 1954, Total Population
4,835,329	225,000	242,000	5,303,000

(Each estimate separately rounded, totals may differ from sums of parts.)

Source: U. S. Bureau of the Census, ref. b, No. 124.

The July 1, 1954 estimate is 5,303,000. For July 1, 1955 the total population was estimated by the Bureau of the Census (ref. b, No. 129) as 5,420,000, a gain of 117,000 in the year. This estimate is exceeded by one made by the Metropolitan Life Insurance Company (ref. b) which sets New Jersey's January 1, 1956 population at 5,504,000. This figure, which excludes armed forces overseas, is 84,000 over the Census estimate for six months earlier.

There are strong indications that the rates of net in-migration may be greater for 1950-55 than they were for 1940 to 1950. The New Jersey Department of Conservation and Economic Development (ref. b) has data on housing. Some of their information is presented in Table I-10.

TABLE I-10

Existing Dwelling Units, 1940, 1950, 1955, New Jersey

	Existing Dwellings	New Dwelling Units
1940	1,223,887	
1950, January 1	1,501,473	
1950		71,195
1951		47,993
1952		46,872
1953		46,930
1954		52,215
1955, January 1 (est.)	1,766,678	

The percentage gain in housing from 1940 to 1950 was 22.7 percent, for a yearly average of 2.2 percent.

The percentage gain in housing from 1950 to January, 1955, was 17.7 percent, for a yearly average of 3.5 percent.

Source: N. J. Department of Conservation and Economic Development, ref. b.

That the more rapid increase of 1950 - January 1955 continued into 1955 is indicated by the U. S. Department of Labor (ref. a) which estimates that new dwelling units added in New Jersey in the first eleven months of 1955 were 11 percent over the corresponding months of 1954.

Further information from the New Jersey Department of Conservation and Economic Development (ref. d) gives estimates of the net in-migration component in New Jersey's population and shows its increasing rate:

Period	Estimated Number	Average Number Per Year
1930-1950	284,325	28,432
1940-1950	309,646	30,965
1950-1955	267,395	53,479

Clear evidence of net in-migration among children may be seen in Table I-11 where comparisons are made between birth-year groups in 1940 and the same groups ten years later. The average increase is over 10 percent in ten years.

TABLE I-11

Change in Size of Birth-Year Group, 1940-1950, in New Jersey

	1940		1950		
Birth Year	Age	Size of Group	Age	Expected Size of Group	Actual Size of Group
1939	1	49,681	11	49,230	58,670
1938	2	53,965	12	53,570	60,540
1937	3	52,056	13	51,710	58,665
1936	4	52,773	14	52,450	55,885
1935	5	52,669	15	52,360	54,930
1934	6	51,882	16	51,570	56,430
1933	7	55,771	17	55,420	60,875

Sources: U. S. Bureau of the Census, ref a, Part 30; Metropolitan Life Insurance Company, ref. a. Calculations rounded to nearest 10.

The table above shows that the group which was one year old in New Jersey in 1940 could have been expected to number 49,230 in 1950. Actually it was 58,670. The extra 9,440 children were in-migrants from other states entering between 1940 and 1950 at a rate of almost 1,000 per year. Table I-12 below shows the ten-year increase for the various years.

TABLE I-12

Gains from Net In-Migration for Certain Age Groups, 1940-1950

Birth Year	1940-1950 Age Span	In-Migration Net Gain	Percent of Expected Size
1939	1-11	9,440	19.2
1938	2-12	6,970	13.0
1937	3-13	6,955	13.5
1936	4-14	3,435	6.5
1935	5-15	2,570	4.9
1934	6-16	4,860	9.4
1933	7-17	5,455	9.8

Source: Calculation from Table I-11.

The average gain from net in-migration for these seven groups is about 11 percent or approximately 1 percent per year for the ten-year period.

New Jersey's population is expected to increase 30 percent by 1970.

Projections of New Jersey's population have been made by various authorities. All agree that the state's growth will be spectacular.

Table I-13 shows projections for the United States and for the State of New Jersey.

TABLE I-13

Projections of Population United States and New Jersey—1954-1980—

Showing New Jersey Percent of Nation

Year	United States(a)	New Jersey(b)	N. J. Percent of Nation
1954	161,183,000	5,253,000	3.26
1960	177,866,000	5,878,000	3.30
1965	188,078,000		
1970	203,339,000	6,893,000	3.39
1975	217,868,000		
1980		7,785,000	

Sources: (a)—U. S. Bureau of the Census, ref. b, Nos. 123, 124. Projections are averages of those presented.

(b)—N. J. Department of Conservation and Economic Development, ref. c. Estimates rounded to nearest 1,000.

The above projection of New Jersey's population may be somewhat conservative. New Jersey's percent of the national population, 3.26 for 1954, is low. The Bureau of the Census (ref. b, No. 124) shows the estimated percentage for 1954 to be 3.29. The New Jersey projection for 1960 shows the percent of the nation's population to be 3.30, while that percent was already passed in the 1955 estimates of the Bureau of the Census (ref. b, No. 129) which placed New Jersey at 3.31 percent.

United States News and World Report for April 6, 1956 bases a projection on Census data and makes an estimate for New Jersey of 7,342,000 by 1975. The Regional Plan Association (1954, p. 27) published a projection of population for nine northern New Jersey counties which predicted an increase from 1954 to 1975 of 45.15 percent. If that rate of increase obtains for the whole state, the 1975 population would be 7,624,000. These estimates are substantially in agreement with those in Table I-13.

There seems to be no doubt that New Jersey is in the midst of a population explosion. *As the general population increases so will the college-age-population.*

The college-age-population by 1973 will have increased over that of 1954 by between 80 and 120 per cent.

The U. S. Bureau of the Census (ref. b, No. 132) has made projections of the size of the 18 to 24 year age group by states for 1958 to 1973. These projections are based on natural increase within the various states and on migration patterns among the various states. The Census projections may be adapted to give the 18 to 21 year age group—the college-age-population—for New Jersey by the application of the 1950 census ratios between the two

groups. These ratios were furnished by the U. S. Bureau of the Census (ref. e)

The college-age-population is taken for this survey as being all the people aged 18 through 21 years at a given time. In general, the year of entrance into college governs the definition of the age-group. Thus, for the academic year 1954-55, the young people who are 18 in 1954 are considered the first component of the college-age-population for that academic year.

Table I-14 shows the Census projections of the 18-21 year age group for New Jersey with an estimate for 1954.

TABLE I-14

Projections of New Jersey College-Age-Population

PROJECTION I—18 to 21 Year Age Group Based on Live Births and Net Migration into New Jersey Like That of 1940 to 1950.

	1954-55	1958	1963	1968	1973
Number	239,000	253,000	348,000	470,000	517,000
Percent	100	106	146	197	216

PROJECTION II—18 to 21 Year Age Group Based on Live Births and Net Migration into New Jersey Like That of 1930 to 1950.

	1954-55	1958	1963	1968	1973
Number	239,000	245,000	333,000	440,000	482,000
Percent	100	103	139	184	202

PROJECTION III—18 to 21 Year Age Group Based on Live Births and No Net Migration into New Jersey.

	1954-55	1958	1963	1968	1973
Number	239,000	233,000	309,000	402,000	436,000
Percent	100	97	129	168	182

Source: Bureau of the Census, refs. a, b, No. 132, and e.

Making a choice between the three projections is not difficult. In the previous section good evidence was presented that the migration rate of 1950-1955 exceeded that of 1940-1950. Estimates based on the migration rate of 1940-1950 are probably too low but more realistic than those based on lower rates. For the purposes of this study, Projection I in Table I-14 is taken as the most likely of the three projections and is used as a base in later calculations. On this basis the college-age-population of New Jersey will probably increase from 239,000 in 1954 to 517,000 in 1973, an increase of 116 percent.

Conclusion—New Jersey, a vigorous, wealthy, industrious state, is in a population explosion which will vastly increase its college-age-population.

CHAPTER II

How Many New Jersey Young People Will be Applicants for Full-time Undergraduate Higher Education?

Summary

Introduction—The number of young people wanting to go to college depends on two variables:

The size of the college-age-group;

The proportion of this group will be capable of and want college education.

This chapter deals with the social forces tending to increase the proportion of the young people wanting to go to college.

I. New Jersey—the most urban state—offers to young people constant proof of the value of education.

II. New Jersey's industries demand a constantly increasing supply of highly trained professional and technical workers.

III. The very high level technology developing in America will magnify the present shortages of trained personnel of all sorts.

Even while the demand for highly skilled personnel increases, demands for intermediate training are growing.

IV. Modern society, complex, integrated, and changing requires broadly educated and flexible citizens.

Enrollments follow accomplished social change and education's task is to help individuals deal with an unpredictable future. The developments of the past two decades have committed our society to a situation where a quantitative and qualitative jump in higher education seems inevitable.

V. National security requires more educated citizens.

VI. Concerted efforts are being made to encourage all qualified young people to go to college.

There is increasing realization and regret that many competent persons never go to college.

The profession of guidance has become stronger and more effective.

An array of scholarship programs, public and private, are available to the young people.

VII. More of the citizen-parents of New Jersey desire higher education for their children.

New Jersey citizens are wealthy and growing wealthier. College attendance increases with wealth.

A college education is looked upon as a gateway to financial security.

New Jersey parents are becoming more highly educated. Increased college attendance goes with more parental education.

VIII. Statistical trends support the proposition that the proportion of young people attending college will increase.

Enrollments in higher education in the nation have sharply increased in the recent past.

An increasing proportion of New Jersey youth graduates from high school and an increasing proportion goes on from high school to college.

Given opportunity, the counties lowest in college-sending will approximate the highest.

At least half of all high school graduates want to go to college.

IX. Experts expect full-time undergraduate college enrollments of 30 percent of the college-age-population. This percentage has already been reached in some states.

X. Estimates for New Jersey of the percentage of the college-age-population wanting full-time undergraduate education in 1973 vary from 21 percent to 38 percent.

No estimate of future enrollments is valid unless there are colleges available.

Low, medium, and high predictions are given:

Low—Enrollments will stay at about 21 percent of the college-age-population.

Medium—Enrollments will increase to about 30 percent of the college-age-population.

High—Enrollments will increase to 38 percent of the college-age-population.

Conclusion—Forces at work in society will induce an increasing proportion of the college-age-population to enter full-time undergraduate college.

For New Jersey the proportion will probably rise to at least 30 percent by 1973. This will bring increases in enrollments from 48,000 in November, 1954, to 155,000 in 1973.

Introduction—The answer to this crucial question of potential enrollments depends on two major variables:

The size of the college-age-group.

The proportion of the college-age-population which will be capable of and want college education.

The college-age-group will more than double within twenty years.

The numbers in the college-age-groups for various years to 1973 were estimated in the previous chapter. Table II-1 repeats the estimate made there.

TABLE II-1

Estimated College-Age-Population (Age Groups 18-21), 1954 to 1973, for New Jersey

		Percent of 1954-55
1954-55	239,000	100
1958	253,000	106
1963	348,000	146
1968	470,000	197
1973	517,000	216

These hundreds of thousands of young people are the human resource from which will come the educated citizens of the next generation. The numbers are reasonably reliable—though perhaps somewhat conservative. The young people who will be of college-age in 1973 are already born.

What proportion of the college-age-population will want to go on to college is another and more difficult matter. The phrase "proportion of the college-age-population in college" is somewhat inaccurate since enrollments include persons under 18 and over 21. Accurately stated the phrase should read "proportion of the 18 to 21 year age-group which is represented by the number

of persons enrolled in college." The shorter phrase is commonly used for convenience of expression. Since the 18-21 year old group contributes the great bulk of full-time undergraduate enrollments, it makes a definable basis for estimating enrollments.

The proportion expected to attend college determines estimates of load. For example, if the present proportion of 20 percent (see page 37) increases to 30 percent, there is a 50 percent increase in enrollments even if there is no increase in the college-age-population. Since the college-age-population will increase, any increases in the proportion attending college will be greater proportions of greater numbers.

This chapter is devoted largely to evaluating some of the factors which will influence college enrollments during the next twenty years. At the present time the numbers of New Jersey young people in full-time undergraduate education represent about 20 percent of the 18 to 21 year age-group. Will this proportion remain the same for the next twenty years, or will it increase? If it increases, will the gain be to 25 percent, 30 percent, 40 percent, or even more?

I New Jersey—the Most Urban State—Offers to Young People Constant Proof of the Value of Education and Demands Ever More Highly Trained Citizens

The relation between urbanization and education can be shown in New Jersey. In Table II-2 are shown the rank orders of seven county groups in New Jersey by level of urbanization and by college-sending.

TABLE II-2

Seven-County Groups by Urbanization 1950 and College-Sending from High School 1954 The Following Year

Urbanization Rank	Percent of H. S. Graduates Going to College
7-county-highest group	31.5
7-county-middle group	25.9
7-county-lowest group	20.1

Source: U. S. Bureau of the Census, ref. a; and N. J. Department of Education, ref. a.

It can be seen that the rankings are parallel. The highest group in urbanization is also highest in college-sending.

II New Jersey's Industries Demand a Constantly Increasing Supply of Highly Trained Professional and Technical Workers

That there is a growing demand for highly trained people in New Jersey is apparent from the data in Chapter I (page 11). New Jersey now draws many of its high level personnel from outside the state. This is reasonable as New Jersey citizens have had relatively little chance at the training required, and the demand for personnel has been overwhelming. The practice of enlisting personnel from outside the state will be forced to change as outside

sources dry up. Already in some industrial categories New Jersey's position is slipping as other parts of the country compete for professional and skilled workers. New Jersey must produce trained personnel or eventually lose out.

New Jersey's demand for professional and technical people increases the demand for higher education in another way. The children of professional and other highly trained people attend college in higher proportions than others. Elmo Roper studied the intentions of college seniors in 1947 with regard to college attendance. He found the proportions of those who had applied for and hoped to go to college to be as shown in Table II-3.

TABLE II-3

College Intentions of High School Seniors Whose Father's Occupational Status Is: (Tabulated by Father's Occupation)

	Prof. and Executive 100%	Small Business Prop. 100%	White Collar Worker 100%	Service Trades 100%	Farmer 100%	Factory and Other Worker 100%
Applied and hope to go next fall	70.8	43.9	41.7	20.2	19.1	18.0
Probably won't go at all	12.2	30.7	28.3	48.4	46.7	53.5

(Columns do not add to 100 as certain categories of responses were omitted.)

Source: Roper (1949, p. 17) adapted.

Note that the children of professional and executive workers far exceed others in their college-going intentions.

The availability of skilled people attracts industry which demands more skilled personnel. More trained people come to the state and want more education for their children.

III The Very High Level Technology Development in America Will Magnify the Present Shortages of Trained Personnel

It is argued by some that there will be too many college graduates. "Who," the question goes, "will ever hire them all?"

Francis H. Horn, (1955, p. 42) President of Pratt Institute, states, "The problem is not an oversupply of college graduates but an undersupply—not just of topnotch graduates, but of almost any live B. A. or B anything else. Our need is for more able young men and women to keep our technological society running in high gear." Horn quotes David Sarnoff of RCA as saying in the January, 1955, *Fortune,* "Automation and other aspects of scientific advance will as a matter of course put a premium on brains . . . The demand for mental competence will be vastly enlarged."

The demands of the upward spiralling technology are indicated by M. H. Trytten (1955, p. 6 f.), an advisor to the Engineering Manpower Commission, when he states, "On the basis of the peacetime growth of our technology, up to 1940, and the rate at which it easily absorbed graduates, it would appear reasonable to expect that in 1955 it would have absorbed annually on the

order of 40,000 engineers as a conservative estimate, and 5,000 scientists at the doctorate level.

". . . Two great additional stimuli have occurred which have increased our man-power demands. One is the advent of billion dollar research budgets for military purposes. The other is the birth of the massive new technological area of nuclear research and development. . . . Research and development budgets in the United States over all had doubled by 1940 over what they were in 1930. However, between 1940 and 1953 they increased by a factor of ten."

It should be noted that the average number of engineers graduated per year at the bachelor level from 1951 to 1955 was about 28,000 (U. S. Office of Education, ref. k).

Benjamin Fine in *The New York Times,* May 1, 1955, reported a conference on the implications for education of the manpower shortages in various occupations. "These facts were cited: . . . . An alarming shortage of physicists exists today. . . . Serious shortages exist in dentistry, medicine, nursing, and pharmacy. Continuing shortages are anticipated in social work and clinical psychology."

Even while the demand for highly skilled personnel increases, demands for intermediate training are growing.

The National Manpower Council (1954, p. 56 f.) states that "the net effect of advances in technology is to increase rather than reduce the over-all demand for skills. . . . One forecast of the manpower results of automation sees the appearance of a new type of 'artisans' who will be 'skilled adjuster-builders.' " The Council suggests (p. 46) that one of the possible definitions of technicians is "as workers whose training takes the form of one, two, or more years of post-high school study in technical institutes or in junior or four-year colleges. Using this definition, it could be argued that the facilities existing in the United States for training technicians are inadequate."

The premium on training is expressed by Norbert Wiener of Massachusetts Institute of Technology (1954, p. 154) "In all important respects, the man who has nothing but his physical power to sell has nothing to sell which it is worth anyone's money to buy." Again he states, (p. 161) "we can expect an abrupt and final cessation of the type of factory labor performing purely repetitive tasks." He also points out (p. 159) that not only assembly line labor but all those who perform repetitive tasks are threatened. "In other words, the machine plays no favorites between manual labor and white collar labor."

The use of "sub-professionals" is increasing the demand for higher education.

The development of the medical profession over the last half century perhaps gives a clue to one of the possible directions of development—the development of "sub-professionals." In relation to the size of the population, the

number of M. D.'s graduated has drastically declined. In fact there are, in absolute numbers, only a few more medical doctors graduated per year than there were in 1900. At the same time the number of persons trained in the fields of nursing and medical technician has greatly increased. Table II-4, adapted from Wolfle (1954), shows how the relative number of technical aides increases as the relative number of top professionals goes down.

TABLE II-4

Health Personnel Per 100,000 People in the National Population

	1900	1910	1920	1930	1940	1950
Dentistry	39	43	53	57	54	50
Medicine	160	159	137	125	126	128
Nursing (Incl. students)	16	90	141	240	282	319
Other Health	57	70	92	124	124	147

Source: Wolfe (1954, p. 106) adapted; U. S. Bureau of the Census, ref. a.

Medical technology and its allied disciplines have become what amount to "subprofessions." The National Manpower Council (1954, p. 66) points out that "All the schools of occupational therapy approved by the American Medical Association and most approved schools for physical therapists and medical technologists now *either require a bachelor's degree for admission or grant a degree after a program which usually runs five years.*" (Italics added)

The Fund for the Advancement of Education (1955, p, 39) says of this program of using sub-professionals," . . . skilled professionals have served more people and served them better as they have progressively delegated their sub-professional tasks to less highly trained technicians and other assistants. The architect or engineer saves his valuable time and serves more clients by hiring draftsmen to prepare detailed drawings; the Supreme Court handles more cases because each justice has a law clerk; the doctor serves more patients because he has transferred many former tasks to technical assistants; the nurse's aide has enabled the professional nurse to serve more patients."

This trend toward supplementing the work of top professionals by sub-professional groups is a function of at least two forces. First, the development of many new high-level fields of professional specialization automatically limits the relative number of top-level people available for a particular field. There is always a shortage of the very best brains. In the second place, the constantly increasing amount of training which the top-level people must undertake to achieve leadership in their professions limits the amount of working time they can give to society.

Many formerly top-level duties must therefore be taken over by assistants if society is to get the full benefit of the leaders' contributions. The sub-professionals will need, if they are to be effective, a degree of training approximating that which only the professionals had yesterday. Their training will tend to be college level work.

This development is one of the reasons the demand for college training shows, about 30 years later, the same type of increase pattern found in the secondary schools. Each expansion of knowledge requires more training for more people. The demand for more and higher education increases at compounding rates. (See Table II-11.)

IV Modern Society—Complex, Integrated, and Changing—Requires Broadly Educated and Flexible Citizens

Enrollments follow accomplished social change.

An excellent statement of this thesis is that by Frank H. Bowles (1955b, p. 4):

"Speculations on the probable form and structure of American education in the next 20 years may well take a lesson, if not a page, from the history of the past 80 years. During the 40-year period 1870 to 1910, our population grew from 40 to 92 million, or 130%. During this same period, the number of college graduates increased from 9,300 to 34,200—or 260%. In 1910, at the close of this period, 85% of all college graduates were in the fields of liberal arts, health, or law, with 5% in engineering and 10% in other activities. This, then, was a period in which there was a clear and definite relationship between population growth and college enrollments in the ratio of 1 to 2. It was also a period when our colleges and universities were producing graduates to serve in four major areas: teaching, the ministry, medicine, and law.

"During the second 40-year period, the population increased from 92 million to 151 million—65%—while the number of college graduates rose from 34,200 to 434,000. Since the latter figure is skewed by veteran enrollments, we can correct it, conservatively, to 260,000. Using the latter figure, we find that the increase was 660%, which means that during this period college enrollments increased at 10 times the rate of population increase. At the close of this period, only 42% of all college graduates were in the liberal arts, health fields, and law, and nearly 40% were distributed between two fields which didn't even appear in the 1910 distributions—education and business. The remaining 20% were distributed between engineering, with 10%; applied biology (principally agriculture) with 5%; and all other fields with 5%.

". . . If these two 40-year periods are compared to find the determining factor, the difference appears to lie in the extent of accomplished social change. I stress *accomplished* social change because while the period 1870 to 1910 was one in which great changes were in the making, it was not in itself marked by great changes. Those changes came after 1910—many of them after the first war—and when they came they were all embracing—technological, economic, and social. I suggest that it was these changes which brought about corresponding changes in the form, structure, and indeed, very purpose of higher education."

Education's task is to help individuals deal with an unpredictable future.

The greatest challenge in modern education is opening the way for individuals to become responsible citizens in the society of forty years hence. Children now in kindergarten— 5 years old—will be in the prime of life in 1984. They will be seeing their children graduate from college in the class of 2001.

The American culture is a happy combination of a dynamism which forces change and a structure which makes change controllable. Economic enterprise drives always to new venture. Intellectual freedom presses always at the boundaries of knowledge. The two forces interact to create a chain reaction where each development leads to more. It is like a widening circle where the farther the circumference is from the center, the more unexplored areas are met. At the same time the American culture is based on a system of political democracy where individuals can test social experiments to be accepted or rejected.

Educators, who cannot know the future, must help the youth relate to this complex, fluid, experimental society. Other generations have had the authority of the traditional, or the power of the authoritarian, to protect them. Caste and class, racism and prejudice, group isolation and discrimination—these are shelters for the fearful.

Maturity today requires that individuals relate to a whole world of people directly and without hate or fear—and this is hard to learn. Understanding of one's self and others cannot be found in a hurry. Young people need a long apprenticeship in the practice of responsible choice. They need extended experience of the great human values. They need explicit training in the tools of society. And they need time to come to terms with themselves.

The more complex the species, the longer the period in which the young are helpless. The more complex the society, the longer must be the period of education of the youth.

V National Security Demands More Educated Citizens

The United States faces a national security crisis resulting from shortages of trained manpower.

Henry H. Armsby, chief of the engineering section, United States Office of Education, is reported in *The New York Times* of November 22, 1955 as saying that within four years the United States would be short 100,000 engineers and scientists.

Lewis L. Strauss is quoted in the same news story as saying that a dangerous shortage of scientists and engineers confronts this country. "Unless immediate steps are taken to correct this," he declared, "a situation, already dangerous, within less than a decade could become disastrous."

VI Concerted Efforts Are Being Made to Encourage All Qualified Young People to Go to College

In part a result of the nation's desperate need for educated persons, and in part a manifestation of the dream of equality of opportunity, efforts are being made to encourage all qualified young people to go to college.

These efforts are keyed to the following factors:

Many competent persons never go to college.

Perhaps the most comprehensive study of this problem was that by Dael Wolfle (1954). Table II-5 summarizes some of his results.

TABLE II-5

Classification of 1,000 High School Graduates by Marks and Intelligence, and by College Attendance

Marks / Intelligence	In lower 60% of High School Class by marks		In upper 40% of High School Class by marks		Total	
In upper 39% by intelligence	117 students	100%	270 students	100%	387 students	100%
	40 enter college	34.2%	137 enter college	50.7%	177 enter college	45.7%
	26 graduate	22.2%	113 graduate	41.8%	139 graduate	35.9%
In lower 61% by intelligence	484 students	100%	129 students	100%	613 students	100%
	117 enter college	24.2%	55 enter college	42.6%	172 enter college	28.1%
	41 graduate	8.5%	31 graduate	24.0%	72 graduate	11.7%
Totals	601 students	100%	399 students	100%	1,000 students	100%
	157 enter college	26.1%	192 enter college	48.1%	349 enter college	34.9%
	67 graduate	11.1%	144 graduate	36.1%	211 graduate	21.1%

Source: Wolfe (1954, p. 176) adapted.

An analysis of Table II-5 indicates:

Only half of those in the most promising group—the top 40 percent of the high school class by marks and the top 39 percent in intelligence—went to college.

Of those in the least promising group, the bottom group on both counts, a surprisingly large number—24 percent—went to college.

Apparently a great increase in college attendance is imminent if efforts to motivate the most competent are successful and if the less competent continue to go in the same proportions. Calculations from Table II-5 show that if only 80 percent of the upper 39 percent in intelligence went to college, the lower 61 percent remaining the same, entrances would increase to 48 percent of the age group.

Little information on the failure of the competent to go to college is available for New Jersey. In a survey of secondary schools (Survey Study b) estimates were given by principals in response to the item "Approximate percentage (of graduating class) who did not go on to college or nursing but who, on the basis of aptitude and personality, *should* have gone on." Principals were asked to use their best professional judgment in their responses. Most of them, 78 percent, were willing to make estimates. If the principals are right, the percentage of competent high school graduates not going on to college is 7.9 percent.

A simple calculation of the failure of qualified New Jersey young people to go on from high school to college in 1955 may be made from data given on page 37.

Since only 25.1 percent of the girls graduating from public high schools did go on to college, at least half of the girls in the upper half of the class did not. In numbers this was over 4,000 girls.

Since only 35.5 percent of the boys graduating from public high schools did go on to college, at least one quarter of the boys in the upper half of the class did not. In numbers this was over 2,000 boys.

Many competent persons never go to college, while quite large numbers of rather low aptitude go and are successful. If the lower aptitude students continue to go in the same proportions and most of the competent are induced to go, there will be a sharp increase in the proportion of the college-age-population enrolled.

Desegregation of colleges represents a marked advance toward equality of opportunity.

Though New Jersey has few critical problems in this particular area, there is evidence that New Jersey's minority group citizens have had less than equality of opportunity in the past. Table II-6 illustrates this.

TABLE II-6

Years of School Completed by New Jersey Persons 25 Years Old and Over, 1940 and 1950, Whites and Non-Whites

	High School	College	
	4 Years	1-3 yrs.	4 yrs. & up
1940 non-white	8.9	3.4	1.5
white	23.1	9.3	5.2
1950 non-white	15.5	4.6	2.1
white	35.0	12.9	7.1

Source: U. S. Bureau of the Census, ref. a., Part 30, Table 20 (computed).

Note: Percentages are cumulative from right to left. "Not reported" are omitted. Thus, persons who have completed college are included in those who have completed high school.

The sharp gains for both groups in the upper three education categories are a warrant of future developments. This is particularly apparent when it is considered that these 1950 figures are for people now 30 years old and over.

The younger generation shows marked gains in apparent opportunity, though it is obvious that inequalities still exist. Table II-7 shows the status of the school generation that was current in 1950.

TABLE II-7

Years of School Already Completed by Persons 16 to 24 Years Old in 1950 by Percentage of Whole Age Group (Based on 20 Percent Sample) in New Jersey

		College	
	4 Years High School	1, 2 or 3 yrs.	4 yrs. & up
Non-White	23.6	4.1	.8
White	46.6	12.2	3.0

Source: U. S. Bureau of the Census, ref. a, Part 30, Tables 15 and 64 (computed).

Note: Percentages are cumulative from the right as in Table II-6.

In the non-white age group 16 to 24 in 1950, there was already a larger proportion of high school graduates than in the group 25 years and up in 1950 (Table II-6). There was already almost as large a proportion who had completed some college. This is in spite of the fact that the 16 and 17 year olds were not yet of college age. At the same time the white group is making spectacular gains in level of education. The gap in opportunity is apparently by no means closed.

Whatever the cause of the past inequalities, it seems inevitable that the future rates at which minority groups go on to higher education must approach equality with those of other social groups.

The profession of guidance has become stronger and more effective.

The importance of this development was noted by a group of educators and business leaders, in a meeting reported in *The New York Times,* May 1, 1955. They suggested that better guidance and counselling programs in the high

schools would result in more superior students' choosing college careers. The improvement of guidance, it was noted, would be facilitated by the trend toward consolidated high schools.

A wealth of scholarship programs, public and private, are available to the young people.

These are discussed somewhat in Chapter IV. Richard L. Plaut (1955) of the National Scholarship Service and Fund for Negro Students points out that about $40-million in new corporate and foundation scholarship programs have come into being in the past two or three years. New York State alone grants scholarships at a rate of over $7,300,000 per year (see page 67). Every new scholarship means a probable increase in the proportions of the population going to college.

VII More of the Citizen-Parents of New Jersey Desire Higher Education for Their Children

New Jersey citizens are wealthy and growing wealthier. College attendance increases with wealth.

Evidence of New Jersey's wealth was shown in the first chapter. That college-going correlates with wealth can be seen from inspection of Table II-8. This table shows by income groupings the rates of college attendance in New Jersey counties.

TABLE II-8

Rank Orders of Three-County Groups by Per Capita Income (1953) and Proportions of Public High School 1954 Graduates Continuing in College the Following Year

By Wealth	Composite 3-County Income Per Cap. Rank in State	Composite H. S. to College Rank in State
Top 3 Counties	1	1
2nd 3 Counties	2	2
3rd 3 Counties	3	3
4th 3 Counties	4	4.5
5th 3 Counties	5	7
6th 3 Counties	6	4.5
7th 3 Counties	7	6

Source: N. J. Department of Conservation and Economic Development, ref. a; N. J. Department of Education, ref. a.

Glen Stice (1955, p. 7f) and his associates in a study of the top 29 percent of high school seniors from a national sample summarize their findings concerning the bearing of financial resources on college-going. "Analysis of (their) plans indicated that *no more* than 18 percent of these boys and 30% of these girls lacked an interest in college. Furthermore, an interest could be *apparently* created in about seven out of every ten of even these children by assuring them of adequate financial assistance.

"Thus, this study would *seem* to indicate that *if adequate financial resources were available, as many as 95 out of every 100 boys, and 91 out of every 100 girls, who are capable of profiting from a college education, would go to college.*

However, when we turn to what these students expect to do, only about *70%* of them expect ever to get to college, and a considerable proportion of these will do so only after some delay." (Italics added)

Hollinshead (1952, p. 162) is somewhat less optimistic concerning the effect of financial resources though he stresses its importance. He points out, "Making rough estimates, we may say that of the superior fourth of our youth 40 percent are not sufficiently motivated to go beyond high school, 20 percent would go if they had financial assistance, and 40 percent go under present circumstances."

An important point relating financial resources to cultural factors is made by the Educational Policies Commission (1950, p. 24) to the effect that, "The economic barrier to advanced education and professional careers rarely presents itself suddenly at a critical moment of decision. Generally, the circumstances of poverty or near-poverty operate over a period of years to condition the whole pattern of hopes and plans which shape the life of an individual."

The State University of New York (1955), in a study prepared by Philip A. Cowen, Associate Coordinator of Research, and his associates, revealed relationships between family income level, college-going, and I. Q. for 7,988 high school graduates (from Long Island, the Capital District, and the Niagara Frontier) above 110 I. Q. (About 48 percent of high school seniors have I. Q.'s of 110 or higher.) One of the findings is shown in Table II-9.

TABLE II-9

High School graduates by I.Q. and According to Family Income. Percentage Planning to Continue Their Education, 1953

	Income under $4000 %	Income $4000-$7999 %	Income $8000 & over %
IQ 130 and over	77	79	96
IQ 120-129	61	72	95
IQ 110-119	49	58	89

(Security of information on family incomes was preserved in the study.)

Source: State University of New York (1955, p. 23) adapted.

Note that almost all young people in families with incomes over $8,000 planned to go on. I. Q. level had slight effect in the upper incomes. But for the less well-to-do, I. Q. level had a sharp effect.

It is quite apparent that college-going is directly related to the wealth of the students' parents. As New Jersey's citizen-parents increase in wealth, they will be more likely to send their children to college.

A college education is looked upon as a gateway to financial security.

A survey presented to the American Sociological Society and reported in *The New York Times,* September 3, 1955, showed the following:

Cost of four-year college education	$7,000
(Average college graduate completes one-half year of graduate work for a total investment of about) $8,000.)	
Estimated lifetime income for those who had completed: (Age span 22-74 or until death)	
Elementary education	$116,000
One to three years high school	135,000
Four years high school	165,000
One to three years college	190,000
Four or more years college	268,000

This is, in itself, sufficient motive for increased enrollments.

New Jersey parents are becoming constantly more highly educated. Increased college attendance correlates with more parental education.

Evidence in Chapter I showed that the proportion of college graduates in New Jersey in 1950 was above the national average and sharply above the state's 1940 level. Every indicator revealed gains in the level of education in the state.

Increased college attendance by parents stimulates higher education of children.

This is demonstrated by Elmo Roper who asked high school seniors of the class of 1947 all over the country how they felt about college. He tabulated their responses by the level of the father's education. His findings are presented in Table II-10 in abbreviated form.

TABLE II-10

College Intentions and Father's Education. Percentages by Level of Education of Father

	No education 100%	Grade School 100%	Some High School 100%	High School Grad. 100%	Some Coll. 100%	Coll. Grad. 100%	Post. Grad. 100%
Applied and hope to go next fall	15.5	18.4	27.6	40.8	55.2	65.1	80.7
Probably will not go at all	63.1	52.2	42.1	28.9	18.4	13.9	4.4

(Items do not add to 100% as some response categories are omitted.)

Source: Roper (1949, p. 16), adapted.

The process is a circular one where each generation's advances make advances in the next generation inevitable. Many veterans of World War II who used the G. I. privileges to go to college already have college-bound children in the schools.

The percentage of New Jersey's citizens who are foreign-born shows a steady decrease. Assimilation to the American culture implies increased desire for equal opportunity.

From 1910 to 1950 the proportion of foreign-born in New Jersey decreased from 25.9 percent to 13.0 percent (U. S. Bureau of the Census, ref. a, Table 24).

It seems reasonable to believe that such factors as the gradual disappearance of the "foreign-language home," the change in young peoples' and parents' roles in the family, and intermarriage with other culture groups will all contribute toward ambition for higher education.

VIII Statistical Trends Support the Proposition That the Proportion of Young People Attending College Will Increase

Enrollments in higher education in the nation have sharply increased in the recent past.

National college enrollments have closely followed the growth of secondary school enrollments. Both have increased much faster than the corresponding age groups. Table II-11 shows these relationships for age groups 14-17 and 18-21. The parallel between secondary school and college patterns of increase suggests that the forces which brought one expansion are now bringing the other. Such forces include many of those which have already been discussed.

TABLE II-11

Percentage of 14-17 Age Group in Secondary School and of 18-21 Age Group in College, 1890-1955, United States

Year	Percent in Secondary School (14-17)	Percent in College (18-21) (a)
1890	6.7	3.0
1900	11.4	4.0
1910	15.4	4.8
1920	31.7	8.1
1930	51.[illegible]	12.2
1940	71.8	15.3
1950	75.7	19.6 (b)
1954	79.9	29.2
1955	n.a.	31.5

(a) Includes all types of resident college education.

(b) Excludes veterans. (n.a. = not available.)

Sources: Fund for the Advancement of Education (1955); U. S. Office of Education, ref. f and b; U. S. Bureau of the Census, ref. b, No. 123.

The development in college enrollments follows that of the secondary schools with a thirty to thirty-five year lag—a lag of one generation.

The big move upward in high school enrollments was from 1910 to 1940—a sweeping growth reflecting the changes of the first quarter of the century. The big move in college enrollments apparently started after World War II reflecting the social changes of the second quarter of the century.

Enrollments of New Jersey students have increased sharply.

The ratio of undergraduates from New Jersey to the college-age-population of New Jersey has increased *by almost ten times since 1900.* Table II-12 shows this change.

TABLE II-12

Percentage Ratio of Undergraduate Enrollment to College-Age-Population (18-21), 1900 to 1955, New Jersey and U. S. (Primarily Full-Time—See Note)

Year Ending	N. J. Ratio—%	U. S. Ratio—%
1900	2.1	3.9
1910	2.8	4.5
1920	5.4	7.0
1930	5.2	11.4
1940	12.4	14.3
1953-54	18.7	18.3
1954-55	20.2	19.8

Note: 1940 and before include both full- and part-time. In this period part-time enrollments were negligible. Full-time data for 1950 are not available. 1953-54 and 1954-55 represent full-time only. New Jersey column is adjusted for in- and out-migration.

Sources: U. S. Office of Education, refs. h and i; U. S. Bureau of the Census, ref a; Council of State Governments (1952).

Note that the New Jersey ratio more than doubled from 1900 to 1920, more than doubled again from 1920 to 1940 and almost doubled again from 1940 to 1955.

An increasing proportion of New Jersey youth graduates from high school and an increasing proportion goes on from high school to college.

In the five years from 1950 to 1955 the percentage of the 17 year age group graduating from public and private secondary school in New Jersey increased from 65 percent to 71 percent, an increase of about one percent per year.

Of public high school graduates in 1946, 21.0 percent entered college the following year. In 1955 the percentage going on was 30.0, an increase of one percent per year. If the graduates of private schools are included, the percentage of all graduates going on to college in 1955 was 35.7. (N. J. Department of Education, ref. a; Survey Study b).

In addition to the entrants into college directly from high school graduation there is an indeterminate number who delay their entry into college for one or more years. Military duty, earning a living, post-graduate study, all contribute to delayed enrollments. While little information is available on this, it seems safe to assume that at least 15 percent of first-time enrollments in college are delayed (Roper, 1949, p. 1; Survey Studies a, c). These delayed enrollments increase, in effect, the proportion of the college-age-group in college.

Part-time undergraduate work in New Jersey colleges accounts for over one-third of all undergraduate enrollments.

New Jersey colleges in 1953 and 1954 enrolled, according to the U. S. Office of Education (ref. i.), more than half as many part-time undergraduates as they did full-time. In 1954, only the District of Columbia, California, and New York had larger proportions of all students enrolled part-time.

These remarkably high part-time enrollments do not mean that New Jersey students necessarily prefer part-time work. California which has a larger proportion of part-time students than New Jersey also has a larger proportion of full-time students. The same is true of New York.

The heavy part-time enrollments are evidence of a great and unsatisfied need for higher education.

Girls graduating from high school go on to college in increasing proportions.

Between 1946 and 1955, the percentage of New Jersey girls who went on to college directly from public high schools increased from 19.8 to 25.1. In the same period the percentage of boys going to college increased from 22.5 to 35.5 (N. J. Department of Education, ref. a).

Educational opportunities for women in our society have greatly increased during the past forty years. Girls have been stimulated to seek college training not only for the advantages of cultural equality with men but to learn a profession to take up after the family is raised.

As the proportion of girls going to college increases, the total enrollments will be forced up.

Given opportunity, the counties lowest in college-sending will approximate the highest.

Great discrepancies in college-sending exist among New Jersey counties. A Bergen County high school graduate has about twice as much chance of going to college as a graduate from Hunterdon or Burlington. He has almost three times the chance of a student from Salem. Table II-13 shows the counties by rank.

TABLE II-13

College Entrance by Public High School Graduates of 1955 by Counties in Rank Order

County	Rank	Percent of H. S. Seniors to College 1955	County	Rank	Percent of H. S. Seniors to College 1955
		The State—30.0			
Bergen	1	41.4	Middlesex	12	23.7
Essex	2	35.8	Hudson	13	23.3
Passaic	3	33.6	Cape May	14	22.6
Union	4	33.4	Cumberland	15	21.5
Morris	5	32.2	Warren	16	21.2
Somerset	6	30.2	Camden	17	21.1
Monmouth	7	30.0	Burlington	18	20.2
Atlantic	8	27.4	Hunterdon	19	19.3
Ocean	9	25.7	Gloucester	20	16.6
Mercer	10	24.7	Salem	21	14.9
Sussex	11	24.7			

Source: N. J. Department of Education, ref. a.

It seems unlikely that the young people of Bergen County are necessarily "better college material" than those of Salem or Warren or any of the other low-sending counties. The factors creating the differences among counties deserve investigation.

Variations in college-sending among communities are even more dramatic than those among counties. The strongest communities have as high as 73 percent of the high school graduates going to college.

If the counties low in college-sending had as many young people go to college as the highest county, the percentage of high school graduates going to college directly from high school would increase immediately by 33 percent.

If colleges were available enrollments would immediately increase.

The Minnesota Commission on Higher Education (1950, p. 88) reported of 1945 high school graduates that, "Better than one graduate in four (27 percent) who resided within ten miles of a college was attending college a year after graduation, as contrasted with approximately one in six of those who lived beyond this distance."

Mercer and Monmouth Counties have almost the same population, 250,000 and 245,000 respectively in 1954. Yet, Mercer County, with a teachers college in Trenton, had 206 students enrolled in New Jersey Teachers Colleges full-time and 123 part-time in 1955, while Monmouth had only 119 full-time and 37 part-time (N. J. Department of Education, ref. b).

Evidence from data collected as part of this study (Survey Study c) shows that towns close to a community college tend to send more young people to college.

If colleges are available, young people attend them.

At least half of all high school graduates want to go to college.

In data collected for this study (Survey Study a), it appeared that 57 percent of the high school seniors definitely planned to continue their education sometime.

The State University of New York (1955, p. 12 f.) reports that, of 20,784 high school graduates, 48 percent planned to continue their education on a full-time basis. Another 4 percent planned to continue part-time.

As part of this study it was discovered that 921 out of a sample of 2,122 New Jersey public high school seniors said they definitely intended sometime to go to college. This was 43.4 percent (Survey Study c).

The R per Study (1949, pp. 1, 18) summarized the intentions of 10,063 high school seniors in May, 1947, with regard to college. The following table shows his results.

TABLE II-14

How High School Seniors Felt about going to College, 1947

	Total Sample 10,063 100%	Middle Atlantic Area 2,289 100%
I have applied and hope to go next fall	31.8	35.3
I have applied but don't know if I want to go next fall	3.0	2.5
I have not applied but hope to go sometime	22.5	15.5
I probably won't go at all	39.8	45.2
Would change mind if sure of getting into a suitable college	8.2	n.a.
Would not change mind even if sure of getting in, but would be inclined if offered a scholarship	9.1	n.a.
Don't know	2.9	1.5

n.a. = not available.

Source: Roper (1949, p. 1, 18 adapted).

The evidence available indicates that at least half and possibly fifty-five percent of the high school seniors want to go on to college. This would mean, since 70 percent of the age-group graduate from high school, that between 35 and 40 percent of all young people want to go on to college.

IX Experts Expect Undergraduate College Attendance by Thirty Percent of the College-Age-Population. This Percentage Has Already Been Reached in Some States

Estimates of the "right" proportion range from 18 percent to over 50 percent.

The President's Commission on Higher Education (1947, p. 41) argued that, "At least 49% of our population has the mental ability to complete 14 years of schooling with a curriculum of general and vocational studies that should lead either to gainful employment or to further study at a more advance level.

"At least 32% of our population has the mental ability to complete an advanced liberal or specialized professional education."

John W. Gardner (1954, p. 12), President of the Carnegie Corporation, cites several proportions, "Roughly twenty-five percent of the population scores at I. Q. 110 or over, and many regard this as the 'right' percentage of the eighteen-year-old population to go to college. . . . Some regard I. Q. 115 as a more suitable level, and that would limit us to about eighteen percent of the population. The President's Commission regarded something in the neighborhood of I. Q. 108 as the appropriate figure, which would include thirty-two percent of the population. Such figures can be quite misleading, however, with respect to the actual state of affairs. There are large numbers of students who attend—and complete—college who have I. Q.'s below 100, and there are large numbers of students of truly brilliant intellectual quality who do not attend college at all! Indeed of the top two percent in intelligence, only about two out of three go to college. Much more important than fixing

the precise percentage that should attend college is to do a better job of selecting those who can profit most from college."

John R. Weir of the California Institute of Technology is reported in *The New York Times,* May 21, 1956, as stating the theoretical possibility that all persons of 90 I. Q. and up may have the intellectual ability to do college work. He suggests that the development of the behavioral sciences may well lead to discoveries which would lower this estimate to 80 I. Q. Ninety I. Q. and up would include about 70 percent of the age-group; 80 I. Q. and up would include 85 percent.

Logan Wilson (1955, p. 101), President, University of Texas, says, "There are undoubtedly some individuals for whom any kind of formal training beyond the secondary school level is simply a waste of time and money, but it is also true that our whole society, as well as the individuals concerned, would benefit from carrying the formal education of the majority of our youths beyond this point."

Hollinshead (1952, p. 138) strikes a balance, saying. ". . . Accepting a kind of compromise between the President's Commission and the more conservative judgments of other educators, the conclusion seems justified that perhaps 35 percent of youth might be expected to profit substantially from formal full-time post-high school education of the kind given at present by such institutions."

Other states are approaching or have passed the 30 percent proportion.

Estimates of the proportion of the 18-21 year-age-group in full-time undergraduate education are given for various states in Table II-15.

TABLE II-15

Ratio of Full-Time Undergraduates to 18-21 Year-Age-Group, 1953-54 and 1954-55, for Certain States and the United States

	Percent—Nov. 1953	Percent—Nov. 1954
United States	18.3	19.8
NEW JERSEY	*18.6*	*20.2*
California	28.9	30.6
Connecticut	23.0	23.1
Delaware	18.8	19.3
Maryland	17.6	16.0
Massachusetts	23.5	24.9
New York	23.9	23.0a
Ohio	18.2	19.2
Pennsylvania	16.4	17.3
Utah	29.7	33.7

Note: Estimates subject to some error owing to variations in migration and mortality. Student migration is allowed for.

a. Philip A. Cowen (1956) reports for New York 25.7 percent in 1955-56.

Source: U. S. Office of Education, refs. h and i; U. S. Bureau of the Census, ref a.

X Estimates for New Jersey of the Percentage of the College-Age-Population Wanting Full-time Undergraduate Education in 1973 Vary from 21 Percent to 38 Percent

Estimates below are of the percentages of young people capable of and wanting a college education. Low, medium, and high estimates are given:

LOW—The ratio of full-time undergraduates to the 18-21 year-age-group will stay approximately *where it is now at about 21 percent.*

This estimate is rejected as much too unrealistic. It is a level which has already been passed by perhaps 20 of the forty-eight states.

MEDIUM—The ratio of students to the college-age-population will increase quite rapidly and then *level off to about 30 percent by 1973.*

1958—24 percent; 1963—27 percent; 1968—29 percent; 1973—30 percent.

This estimate is accepted, though with some hesitation. California and Utah have already reached or passed this level. The assumption that it will take New Jersey 18 years to reach where California is now is conservative.

HIGH—The ratio will increase rapidly and *level off at about 38 percent by 1973.*

1958—26 percent; 1963—31 percent; 1968—35 percent; 1973—38 percent.

This high estimate is rejected, though it is not so unrealistic as the *Low.* The President's Commission, cited above, went well beyond this figure to 49 percent. It is believed, in fact, that the social pressures discussed above may make the *High* estimate closer to the mark than the *Medium* estimate which was accepted.

In Table II-16 these estimates of proportions going to college are applied to the accepted projection of the college-age-population.

TABLE II-16

Full-Time Undergraduate Enrollments Based on Projected 18-21 Age-Group for Three Estimates of Percentage Attending

	Nov. 1954	1958	1963	1968	1973
18-21 Group	239,000	253,000	348,000	470,000	517,000
High Enrollment	48,000	66,000	108,000	164,000	196,000
Medium—Accepted	48,000	61,000	94,000	136,000	155,000
Low Enrollment	48,000	53,000	73,000	99,000	109,000

Several points should be noted concerning estimates of future enrollments.

1. By 1973, at the *low and unrealistic* estimate, the total enrollments are doubled. At the *accepted medium estimate,* enrollments are more than tripled. At the *high but still possible estimate,* they are more than quadrupled.

2. If New Jersey has *no more gains* from net in-migration and if *no greater* a percentage of the 18-21 year group goes to college than does now, the enrollments of full-time undergraduates would be:

1954-55	1958	1963	1968	1973
48,000	49,000	65,000	84,000	92,000

Thus, at the lowest possible estimate, there will be more than double the present enrollments by 1973.

3. There will be over 300,000 young people age 18-21 *not in college* in 1973 even if the high estimate of college attendance obtains, 400,000 on the low estimate.

4. If colleges are not available, young people cannot go to them. All estimates above will be proved false if facilities are not provided.

Conclusion—Forces at work in society will induce an increasing proportion of the college-age-population to attend full-time undergraduate college.

For New Jersey the proportion will probably rise to at least 30 percent by 1973.

This will bring increases in enrollments from the November 1954 figure of 48,000 to 155,000 by 1973.

CHAPTER III

What College Facilities Will be Available for Prospective New Jersey Students?

Summary

Introduction—By 1973 the number of New Jersey young people wanting full-time undergraduate education will be over three times the number in 1954-1955. Enrollments will probably increase from 48,600 to 155,000. These estimates are conservative.

I. Unless new facilities are provided in addition to those already existing or planned, there will be over 25,000 students in 1963 with no place to go. By 1973 there will be over 80,000.

II. Gross numbers do not give the complete picture of deficits in facilities. Imbalances may develop as to types of institutions, locations, and courses of study. Such imbalances reduce the effectiveness of expansion plans.

III. A great many New Jersey students go on to graduate work. Serious deficits in graduate facilities are likely to develop.

IV. The spectacular increases in the numbers of young people who will want to go to college are paralleled by increases in numbers of persons in the 18-21 year age group who will not go to college.

V. The deficit in college facilities, if allowed to develop, would result in a wholesale denial of educational opportunity.

Conclusion—All existing facilities and all planned expansions of private colleges and the maximum use of present public colleges will not meet the anticipated demand for higher education in the next two decades. Severe shortages will develop in almost every part of the state, in residential facilities, in certain areas of undergraduate study, in graduate work, and in other post-high school training.

The deficits in facilities will result in serious personal and social loss.

Introduction—By 1973 the number of New Jersey young people wanting full-time undergraduate education will be over three times the number in 1954-1955. The probable enrollments (from Chapter II, page 42) are:

	1954-55	1958	1963	1968	1973
Probable Enrollments	48,000	61,000	94,000	136,000	155,000
Percent	100	127	196	283	323

Estimates of enrollments have deliberately been made conservative.

College-age-population estimates are based on the assumption that the 1940-1950 migration rate will continue. This is probably conservative.

Ratios between the full-time undergraduates and the 18-21 year old population are based on the medium projection, i. e., increasing from the present 20 percent to 30 percent in 1973. Considering the factors involved, this is probably conservative.

The problem of handling future college enrollments is, for New Jersey, especially difficult.

The citizens of this state have, for years, sent their young people outside the state to college. In 1949-1950, 53.5 percent of New Jersey full-time and part-time undergraduates attended college outside the state (U. S. Office of Education, ref. h). This was, by over ten percentage points, the *highest* rate of out-of-state sending for any state, and was the *lowest* New Jersey proportion since 1896. In 1920-21 over 80 percent of New Jersey students (excluding normal school and professional students) went to college outside the state.

As a result New Jersey, compared to other states, has few facilities on which to build. Less than 10 percent of the 18-21 age-group was accommodated as full-time undergraduates in New Jersey colleges in 1954-55. If no expansions occurred, these colleges could handle less than 4 percent of the age-group for 1973.

It is necessary, therefore, to consider the present patterns of college-going of New Jersey young people and the plans being made for expansion by both out-of-state and in-state colleges before an estimate of the problem facing New Jersey can be reached.

The following propositions concerning New Jersey full-time undergraduates in 1954-1955 are based on survey studies to be presented in full in supplementary papers. They serve as background for estimating facilities to be available to New Jersey students in the next two decades.

I Unless New Facilities Are Provided in Addition to Those Already Existing or Planned, There Will be Over 25,000 Students in 1963 With No Place to Go. By 1973 There Will be Over 80,000

Fifty-five percent of New Jersey full-time undergraduates attended college outside the state in 1954-1955. Out-of-state colleges will be able to take only 19 percent of anticipated 1973 enrollments.

Expansion plans of out-of-state colleges call for the following (all estimates based on November, 1954, and rounded to 1,000s):

Private colleges in the metropolitan areas of New York and Philadelphia hope to increase enrollments by 50 percent, going from 4,000 to 6,000 New Jersey full-time undergraduates (1,000 residential students and 5,000 commuters).

Private colleges outside the metropolitan areas hope to increase enrollments by 17 percent from 18,000 to 21,000 New Jersey undergraduates—all residential students.

Public out-of-state colleges which took 4,000 New Jersey students in November 1954 will probably take fewer than they do now, going down to 3,000. These public colleges will be under heavy pressure to accept only residents of their own states and will probably decrease New Jersey enrollments by approximately 25 percent.

The total increase for out-of-state colleges will be from 26,000 students in November 1954 to a maximum of 30,000. This would represent an overall increase of 15 percent. Out-of-state New Jersey enrollments in 1973 of 30,000 would represent 19 percent of the anticipated 1973 student demand.

Assume the out-of-state college expansion builds up gradually over a period of years. If the facilities to be provided are subtracted from the anticipated enrollments, the load to be carried by all New Jersey colleges is obtained.

TABLE III-1

Out-of-State Facilities Subtracted from Anticipated Enrollments Give New Jersey Load

	Anticipated Enrollments	Out-of-State Colleges	New Jersey Load
1954	48,000	26,000	22,000
1958	61,000	27,000	34,000
1963	94,000	28,000	66,000
1968	136,000	29,000	107,000
1973	155,000	30,000	125,000

(Sources: Survey Studies a, c, d, f, h; U. S. Office of Education, ref. h.)

Twenty-three percent of New Jersey full-time undergraduates attended New Jersey private colleges in 1954-1955. These colleges will be able to take, by their present plans, 16 percent of anticipated 1973 enrollments.

Expansion plans of New Jersey private colleges call for the following:

New Jersey's 29 private undergraduate institutions enrolled in November 1954 a total of 16,200 full-time undergraduates of whom approximately 11,200 were residents of New Jersey. This was 51 percent of the New Jersey students enrolled in New Jersey.

These private colleges hope to effect expansions of facilities which would bring their total enrollments of full-time undergraduates from New Jersey to about 25,000, an increase of 14,000 students. This would be an increase of 127 percent. New Jersey private college enrollments of 25,000 would represent 16 percent of the anticipated 1973 demand.

Seton Hall University with an increase of 6,600 and Fairleigh Dickinson with an increase of 2,700, together would account for roughly two-thirds of the projected increases in enrollments in New Jersey private colleges.

Plans of the New Jersey private colleges call for a very rapid expansion to about 21,000 New Jersey students by 1963 after which there would be a levelling off to 25,000.

(Sources: Survey Studies a, g; N. J. Department of Education, ref. h; N. J. College Fund Association; Appendix 1.)

Twenty-two percent of New Jersey full-time undergraduates attended New Jersey public colleges in 1954-1955.

Public colleges in New Jersey do not at present have firm long-range expansion plans.

Though expansion plans of public colleges depend in part on the findings of studies of this sort, their present capacity must be considered as part of all the facilities to be available.

The eight state-supported four-year institutions in New Jersey, with their present facilities, could expand from full-time enrollments of 10,400 in November 1954 to approximately 16,000. Actually they will operate at almost this rate in 1956-1957.

The two municipal junior colleges in New Jersey could expand with present facilities from 300 full-time undergraduate students in 1954-1955 to approximately 1,000.

For purposes of this study it is assumed that all the public colleges of New Jersey, with their present facilities, could accommodate 17,000 full-time undergraduates. This would amount to 11 percent of the anticipated 1973 demand.

(Sources: Survey Study i; N. J. Department of Education, ref. b; Appendix 1.)

Undergraduate facilities, existing and in planned expansions, out-of-state and in New Jersey, will not be sufficient to handle anticipated full-time enrollments.

Table III-2 shows the situation as it is likely to develop in the next two decades.

TABLE III-2

Facilities to be Available to New Jersey Students (Rounded to Thousands)

	Out-of-State	Private N. J	Present N. J. Public at Capacity	Total Facilities
(1954-55)	(26,000)	(11,000)	(11,000)	(48,000)
1958	27,000	15,000	17,000	59,000
1963	28,000	21,000	17,000	66,000
1968	29,000	23,000	17,000	69,000
1973	30,000	25,000	17,000	72,000

If the "total facilities" column above is subtracted from the estimates of probable enrollments, there appear the deficits in facilities facing New Jersey.

TABLE III-3

Enrollments, Facilities, and Deficits—1958 to 1973

	Probable Enrollments	Total Facilities	Total Deficits
1958	61,000	59,000	2,000
1963	94,000	66,000	28,000
1968	136,000	69,000	67,000
1973	155,000	72,000	83,000

Unless there are more facilities planned, there will be by 1963 more prospective students without any place to go than all the full-time undergraduates in all the colleges in New Jersey in 1954-1955.

By 1973 there will be more prospective students without any place to go than three times all the full-time undergraduates in all the colleges in New Jersey in 1954-1955.

II Gross Numbers Do Not give the Complete Picture of Deficits in Facilities. Imbalances may Develop as to Types of Institutions, Locations, and Courses of Study. Such Imbalances Reduce the Effectiveness of Expansion Plans

Seventy percent of New Jersey students attended private colleges in 1954-1955. By 1973 this percentage will go down to 35 percent if public institutions meet the deficits.

This 70 percent of New Jersey students in private colleges contrasts sharply with the national distribution between public and private colleges. In 1954, nationally, 55.8 percent of all enrollments and 59.8 of first-time enrollments were in public colleges. (U. S. Office of Education, ref. e).

If the projected expansions discussed above take place, private colleges in 1973 will be able to accommodate only about one-third of New Jersey's applicants, or 55,000 out of 155,000 students.

New Jersey students are now about as willing to go to public colleges as they are to private colleges. A survey of their preferences showed that 42 percent preferred public colleges, 46 percent preferred private colleges, and 12 percent were indefinite. Nevertheless, since preference for private colleges tends to increase with level of parental education and to some extent with the student's level in the high school class, imbalances may develop.

(Sources: Survey Studies a, c; N. J. Department of Education, ref. b; U. S. Office of Education, ref. e; Roper 1949, p. 52; New York, State University of, 1955, p. 24; Appendix 1.)

Sixty-one percent of New Jersey students in 1954-1955 lived at the colleges where they studied. Projected facilities for residential students would accommodate only 23 percent of the anticipated 1973 enrollments.

Residential facilities for New Jersey students are planned as follows: (rounded to 1,000's)

	1954-55	1973
Out-of-State	22,000	25,000
Private in New Jersey	2,000	4,000
Public colleges in N. J. at maximum (present)	5,000	5,000
Totals	29,000	34,000

In New Jersey at least 80 percent of prospective college students would prefer to live at the college. In fact it is probable that some would choose a second-rate residential college over a first-rate community college. This desire for residential colleges increases with both parental wealth and parental education. As both correlatives increase in New Jersey, the demand for residential facilities is likely to increase. Conservatively it is estimated that there will be by 1973 a *minimum* of 50 percent of the anticipated number of students who

will want residential facilities. The demand is estimated as dropping gradually from the present 61 percent to 50 percent in 1973:

TABLE III-4

Demand and Supply in Residential Facilities, 1950-1973

	1958	1963	1968	1973
Minimum demand for residential facilities	37,000	53,000	73,000	78,000
Facilities to be available in- and out-of-state	31,000	32,000	33,000	34,000
Deficits-Residential	6,000	21,000	40,000	44,000

These estimates indicate an almost certain deficit in residential facilities. It is a fear of some educators that, if residential facilities are not provided by responsible agencies, colleges of dubious quality will spring up outside New Jersey to exploit the market.

(Sources: Survey Studies a, c, f, g, i; Roper 1949, p. 61; New York, State University of, 1955, p. 51; Appendix 1.)

Thirty-nine percent of the full-time undergraduates were in non-residential or commuting colleges in 1954-1955. Severe shortages of non-residential facilities will develop, especially in southern and northwestern counties.

Expansion plans in non-residential colleges show a good deal of imbalance. Most expansions are planned for the metropolitan areas. Since students will travel not much more than twenty miles daily one-way to get to college and most students of a community college come from within 16 miles, the planned expansions may not serve the need as effectively as gross numbers would indicate.

Table III-5 compares prospective non-residential facilities with probable numbers of students for various counties.

The estimates of county enrollments are based on three assumptions:

1. That the proportion of the college-age-group in any county which wants to go to college will equal that of the state as a whole;
2. That the proportions of all students wanting non-residential facilities will be 43 percent in 1963 and 50 percent in 1973 (Compare residential estimates above);
3. That the population of the counties will increase in accordance with their recent (1950-54) growth patterns. (This may be much too conservative an assumption. Information available indicates that very large increases in the population of some counties may be anticipated).

TABLE III-5

Potential Non-Residential (Commuting) Students and Facilities to be Available, 1963 and 1973 (Rounded to Nearest Hundred)

(1)	(2) Maximum Non-Residential Enrollment Planned (a)	(3) 1963 No. Potential Commuting Students	(4) 1963 Deficit	(5) 1973 No. Potential Commuting Students	(6) 1973 Deficit
Atlantic	0	1,100	1,100	2,000	2,000
Bergen	4,300	4,500	200	9,100	4,800
Burlington	0	1,300	1,300	2,600	2,600
Camden	500	2,600	2,100	5,000	4,500
Cape May	0	300	300	600	600
Cumberland	0	700	700	1,400	1,400
Essex	15,600	7,100	—(8,500) (b)	12,800	—(2,800)
Gloucester	600	800	200	1,600	1,000
Hudson	3,800	4,900	1,100	8,500	4,700
Hunterdon	0	300	300	600	600
Mercer	1,600	1,900	300	3,800	2,200
Middlesex	1,900	2,600	700	5,500	3,600
Monmouth	2,000	1,900	100	3,700	1,700
Morris	400	1,500	1,100	3,000	2,600
Ocean	100	600	500	1,200	1,100
Passaic	1,700	2,800	1,100	5,300	3,600
Salem	0	400	400	800	800
Somerset	0	900	900	1,800	1,800
Sussex	0	300	300	500	500
Union	1,500	3,500	2,000	6,900	5,400
Warren	0	400	400	800	800
	34,000	40,000		77,500	

(a) Includes all proposed non-residential facilities of private colleges and maximum use of present public facilities for commuting students. In addition, there may be 5,000 places out-of-state: 2,000 in New York; 3,000 in Philadelphia.

(b) Figures in parentheses represent surplus places.

Reads: In Atlantic County there are no proposed facilities for commuting students; by 1963 there will be 1,100 potential commuting students, leaving a deficit of 1,100; by 1973 there will be 2,000 students, deficit 2,000.

Sources: See end of section.

The information in the Table above is consolidated for various areas of the state in the following tabulations (all estimates rounded to 1,000).

TABLE III-6

Non-Residential Facilities by Various County Groups. (Note: County Groups Overlap)

	Places to be provided for commuters Total	Probable Demand 1963	Probable Demand 1973
Counties an easy commuting distance from New York (Bergen, Essex, Hudson) show:	26,000(1)	17,000	30,000
Counties an easy commuting distance from Philadelphia (Camden, Burlington, Gloucester) show:	4,000(2)	5,000	9,000
Essex and its adjacent counties (Hudson, Bergen, Passaic, Morris, Union) show:	27,000	24,000	46,000
The central counties (Mercer, Middlesex, Monmouth, Somerset) show:	6,000	7,000	15,000
Counties south of the bend in the Delaware (Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, Salem) show:	1,000	8,000	15,000
The three southernmost counties alone (Atlantic, Cape May, Cumberland) show:	0	2,000	4,000
The northwest counties (Hunterdon, Morris, Passaic, Sussex, Warren) show:	2,000	5,000	10,000

(1) New York City included.

(2) Philadelphia included.

Sources: See Table III-5.

The pattern of facilities for non-residential students needs study. It appears that major difficulties will develop for commuting students in areas centering around:

County Area	Potential Unsatisfied Demand Areas in 1963	Potential Unsatisfied Demand Areas in 1973
Atlantic	1,000	3,000
Cumberland	1,000	2,000
Ocean	1,000	2,000
Burlington	1,000	2,000
Hunterdon	1,000	2,000
Sussex	1,000	2,000

(Sources: Survey Studies a, c, f, g, i; N. J. Department of Conservation, ref. c, Appendix 1.)

Ninety-six percent of New Jersey students in 1954-1955 attended four-year colleges.

Among New Jersey young people there is apparently little demand for two-year institutions. A survey of their preferences revealed that, at most, 15 percent would want to attend this type of college. Many of those who did were girls who wanted residential colleges rather than two-year institutions of the community type.

New Jersey students attending two-year colleges in 1954-1955 were distributed 1,200 to the residential type, 800 to the non-residential type.

(Sources: Survey Studies, a, b, c; N. J. Department of Education, ref. b.)

Three major areas of study—education, engineering, business—are most popular among students entering college. Severe deficits in facilities for education and engineering are very likely to develop.

1—Twenty-one percent of the high school students entering college in 1955 expressing course preferences indicated education as their chosen field.

In teacher education New Jersey has been a deficit state. In 1954 New Jersey had 3.29 percent of the national population but produced only 2.07 percent of the bachelor's and 1.25 percent of the graduate degrees in education.

New Jersey public schools in 1954-1955 employed 4,000 teachers who had not taught before that year in New Jersey. Of these, only 1,136 came directly from New Jersey colleges. Estimates from the New Jersey Department of Education indicate a constant need for about 4,200 new public school teachers a year for the next decade.

Future facilities in New Jersey for teacher education can be calculated from the maximum use of the State Teachers Colleges and from the expansion plans of private colleges which train teachers. It is assumed that the private college enrollments in teacher education (estimated from degrees granted in 1954) will expand at the same rate as their total enrollments.

TABLE III-7

Demand, Facilities, and Deficits in Teacher Education (Rounded to 100's)

	Student Demand 18 percent of all Students in N. J.	Facilities in N. J. Public Present	Facilities in N. J. Private Anticipated	Deficits in New Jersey
1963	11,900	6,500	1,300	4,100
1973	22,500	6,500	1,300	14,700

Note: Demand is taken as 18 percent of all students in New Jersey. The estimate is based on a sample of New Jersey young people going into all types of post-high school training in the fall of 1955, and on the fact that over 20% of New Jersey full-time undergraduates in New Jersey colleges are in preparation for teaching. Facilities are placed at maximums.

The 1963 deficit of 4,100 places is approximately the total full-time enrollment of the six State Teachers Colleges in 1954-1955.

It should be noted that total enrollments of about 500 students are necessary to produce 100 graduates per year. If 12,000 students were enrolled in teacher education in 1963, the state would produce about 2,400 graduates per year to meet a demand of at least 4,200. Since only about 80 percent of these graduates would do any teaching, and some of these would teach for only a short time, it is apparent that New Jersey would still face a shortage of teachers.

(Sources: Survey Studies a, c, i; N. J. Department of Education refs. b, c; U. S. Bureau of the Census ref. a; U. S. Office of Education, ref. c.)

2—Seventeen percent of the high school students expressing course preferences and entering college in 1955 indicated engineering as their chosen field.

In engineering education, too, New Jersey is a deficit state. In 1950 New Jersey, with 3.22 percent of the national population, employed 6.3 percent of all working engineers including over 12 percent of those employed in industrial laboratories. In 1954 New Jersey colleges granted only 2.3 percent of the nation's bachelor's degrees in engineering. (See Tables I-1, I-3)

There will be a continuing need for engineers. The Engineering Joint Manpower Commission (1955) estimated several years ago that 40,000 new engineers are needed yearly and sees "No reason for altering (the estimate) now except perhaps in an upward direction." Only 22,600 bachelor's degrees in engineering were granted in 1954-1955 (U. S. Office of Education, ref. k.). In spite of the need, the percent enrolled in engineering is not likely to increase appreciably.

Frank H. Bowles (ref. a, p. 19) says, "I can see no reason to expect that engineering will in the foreseeable future enroll more than its present ten percent of college-going students."

Demand, facilities, and deficits in engineering can be estimated as they were for teaching. Demand for engineering education is based on the expected number of in-state students since out-of-state colleges are expected to increase engineering facilities at the same rate as increases in other areas. This is probably an optimistic expectation considering the costs of engineering education.

TABLE III-8

Demand, Facilities, and Deficits in Engineering. Full-Time Only (Rounded to 100's)

	Demand In-State 10% of Students	Facilities In-State Public	Private	Deficits
1963	6,600	2,800	1,500	2,300
1973	12,500	2,800	1,500	8,200

Note: Demand is taken at 10 percent based on a sample of high school students entering all types of post-high school training in the fall of 1955 and on the estimate by Bowles. Facilities are placed at maximum planned.

It is apparent that a severe shortage in engineering education is going to develop unless new facilities are provided.

Even if all the 7,000 probable applicants for engineering were enrolled in 1963, graduates would be produced at a rate of only 1,400 per year. At this rate New Jersey would still be highly dependent on other states.

(Sources: Survey Studies a, f, g, i.)

3—Probably 20 percent of the future college students of New Jersey will want education for business, commerce, or accounting.

While only 9 percent of the high school students expressing a course preference and entering college in 1955 chose this field, two considerations validate an estimate of 20 percent. Twenty-one percent of all New Jersey

bachelor and first professional degrees were in this area in 1954. Frank H. Bowles (ref. a, p. 18) says, "It seems entirely reasonable to suppose that schools of business which are now . . granting one-sixth of the college degrees given annually, will within ten years be granting one-fifth of all degrees."

New Jersey's position in this area is relatively good. In 1954 the state, with 3.29 percent of the population, produced 3.09 percent of the nation's bachelors degrees and 3.53 percent of the graduate degrees in business, commerce, and accounting. In accounting and auditing alone New Jersey granted 4.3 percent of the degrees while employing 5.1 percent of persons in these professions.

Computation of demands, facilities, and deficits follows the procedure used for engineers.

TABLE III-9

Full-Time Demand, Facilities, and Deficits in Business and Commerce (Rounded to 100's)

	Demand In-State 20% of Students	Total Facilities Public	Private	Deficits
1963	13,200	2,300	8,500	2,400
1973	25,000	2,300	8,500	14,200

Note: Demand is placed at 20 percent based on estimates above. Facilities are placed at maximum planned.

The situation in this field will become critical at the undergraduate level. (Sources: Survey Studies a, g, i; U. S. Bureau of the Census ref. b, No. 124; U. S. Office of Education, ref. c; Appendix 1.)

Imbalances in proposed facilities may arise from other factors.

Expansions of colleges with special orientations may not relieve the enrollment problem as much as their proposed increases might indicate. Since 63 percent of all planned expansion in New Jersey is in church-related colleges, some imbalances may develop.

Emphasis on certain types of courses may preclude optimum use of facilities. For example, some types of college course are relatively inexpensive to operate. Text-book work, with no laboratory and large classes, in some academic areas, can be quite economical of space and staff. As a result some colleges tend to concentrate on these areas or to stress these techniques of instruction. Students who want the more expensive courses may find such colleges inadequate to their needs.

(Sources: See Appendices 1 and 2.)

III A Great Many New Jersey Students Go on to Graduate Work. Serious Deficits in Graduate Facilities Are Likely to Develop.

The facts on graduate study pose a serious problem for New Jersey. Over 50 percent of the New Jersey residents graduating from New Jersey colleges in 1955 expressed an intention to do graduate work. It is estimated that New

Jersey has one resident in full- or part-time graduate study for every three residents in full-time undergraduate work. If the out-of-state graduate schools, which now enroll 70 percent of New Jersey students in graduate work, are forced to limit enrollments, the pressure on New Jersey schools will be very heavy.

Graduate instruction has profound influence on undergraduate enrollments. Students ambitious for advanced work will tend to go to colleges which have graduate programs or are reputedly capable of getting students into graduate school. Since the type of student tends to determine the level of instruction, a circular process develops. Colleges oriented toward graduate study attract better students. This encourages the development of higher standards. This makes it easier for the students to get into graduate school, and more students apply for admission to the colleges. As more students apply, admission standards can again be raised. It follows that colleges oriented toward graduate work attract better staff, have more advanced facilities, and tend to draw more endowments.

This survey lacked the time and the budget to make even a preliminary study of future problems in graduate facilities, but a few estimates can be made on the basis of available data.

An estimate of student demand for facilities derives from the ratio three full-time undergraduates to one graduate student. While 70 percent of graduate students now go outside the state, assume that this percentage will drop to 50 percent by 1973. This is a conservative estimate since the national figure for out-of-state graduate work is only 30 percent. From these elements Table III-10 can be derived.

TABLE III-10

Student Demand for Graduate Work in New Jersey. Full- and Part-Time (Rounded to 1,000's)

	Demand—33% of Total Full-time Undergraduates	To Out-of-State Schools		New Jersey Load Full- and Part-Time
1954-55	17,000	70%	12,000	5,000
1963	31,000	60%	19,000	12,000
1973	53,000	50%	26,000	27,000

Since only about 4,900 New Jersey residents were accommodated, full- and part-time, in New Jersey graduate schools in 1954-55, it appears that the graduate problem is fully as urgent as the undergraduate problem (see page 63). Severe deficits in facilities for graduate training are almost inevitable.

(Sources: Survey Studies d, e; N. J. Department of Education, ref. b; U. S. Office of Education, ref. h, i.)

IV The Spectacular Increases in the Numbers of Young People Who Will Want to Go to College Are Paralleled by Increases in Numbers of Persons in the 18-21 Year Age Group Who Will Not Go to College

Those who are not going to college set a formidable problem for society. Calculations from Chapter I and II, based on the probable college enrollments, show the following numbers *not* enrolled:

1954-55	1958	1963	1968	1973
191,000	192,000	254,000	334,000	362,000

Some of these young people will go into the military service for a brief period, some into educational institutions like nursing schools, technical schools, and business institutes. It is probable, however, that a great number will come into the labor market looking for an increasingly limited number of unskilled starting jobs.

Several aspects of this possible development are of concern to responsible citizens:

1. The proportionately fewer young people going to college and other schools, the more unskilled workers there will be on the labor market.
2. A surplus of unskilled workers is potentially dangerous economically, politically, and socially.
3. The proportion of unskilled jobs in New Jersey is constantly decreasing and developments in post-high school technical training may become imperative.

Two quotations give point to the above comments.

Changing Times, The Kiplinger Magazine for May 1956, forecasts:

"COLLEGE GRADUATES NEXT MONTH will have no trouble finding a job. Never have there been so many opportunities for good jobs at high pay. Experts say a college education pays off in terms of money earned. This year starting offers of $300, $350 and $400 a month are the rule, not the exception.

"HIGH SCHOOL GRADUATES aren't all going to find job hunting easy or salaries attractive. Good openings will be hard to find, and pay won't always be up to expectations. Yes, a college education helps as a door opener to the best opportunities."

The U. S. Department of Labor is cited in *The New York Times,* May 21, 1956 as advising high school graduates:

"Perhaps you have decided you want or need a job now. Don't consider the decision permanent.

"If you have the interest and capabilities, there are many well-paying technical jobs which could be available to you after one year or several years of specialized training."

V The Deficit in College Facilities, If Allowed to Develop, Would Result in a Wholesale Denial of Educational Opportunity

The situation in the fall of 1956 is already serious.

Benjamin Fine, writing in *The New York Times* of May 20, 1956 reports one admissions director as saying, "We are turning students away by the score. Top grade (high school) seniors who normally would be admitted without a second thought can't even get on the waiting list now." Fine reports that Rutgers University, The State University of New Jersey, in May 1956 had already turned down about 300 applicants who would have been accepted in other years. The reason—lack of facilities.

The New Jersey State Teachers Colleges refused admission for the fall of 1956 to over 150 applicants who would have been admitted in other years. The reason—lack of facilities.

In both the State University and the State Teachers Colleges admissions for 1956 increased over those for 1955. At the State Teachers Colleges 1954-55 enrollments were 4,100; 1955-56 enrollments were 4,600; 1956-57 enrollments are expected to be 5,500.

One way of estimating the impact of the facilities deficits on admissions is to consider the student population involved.

A variety of factors are involved in the determination of whether a young person will wish to go to college. These include ability, wealth, proximity to a college, family culture, group culture. Byron Hollinshead in his book *Who Should go to College?* has made a brilliant analysis of the multiplicity of factors involved.

In discussion here of the loss of opportunity, only one factor is considered—the ability of the student as measured by standard tests.

In the following discussion percentage groups of the population may be equated to AGCT (Army General Classification Test) scores after Wolfle (1954, p. 312). Wolfle (p. 143) states that the AGCT is roughly equivalent to the IQ over most of the range.

Percentage Range of age group	AGCT Equivalents
Top 10 percent	126 and up
2nd 10 percent	118 to 125
3rd 10 percent	112 to 117
4th 10 percent	106 to 111
5th 10 percent	100 to 105

It is assumed that the chances of getting into college will decrease as the child shows less ability. It is also assumed that no new facilities will be provided beyond those already discussed above.

In 1958—Students' Birth Years 1936-1939

The total college-age-group will number at least		253,000
There will be facilities for		59,000
Of the top 10 percent there will be room for all	25,300	
Of the 2d 10 percent there will be room for all	25,300	
Of the 3d 10 percent there will be room for only	8,400	
	59,000	

If all of those in the top 20 percent went to college, students in the third 10 percent would have only one chance out of three of finding a place.

In 1963—Students' Birth Years 1941-1944

The total college-age-group will number at least		348,000
There will be facilities for		66,000
Of the top 10 percent there will be room for all	35,000	
Of the 2d 10 percent there will be room for only	31,000	
	66,000	

If all those in the top 10 percent go on to college, one-sixth of those in the second 10 percent will find no place. Those in the third 10 percent and below will have no chance.

In 1968—Students' Birth Years 1946-1949

The total college-age-group will number at least		470,000
There will be facilities for		69,000
Of the top 10 percent there will be room for all	47,000	
Of the 2d 10 percent there will be room for only	22,000	
	69,000	

If all those in the top 10 percent go on to college, only one out of two of those in the second 10 percent will find a place. None in the third 10 percent or below would be admitted.

In 1973—Students' Birth Years 1951-1954

The total college-age-group will number at least		517,000
There will be facilities for		72,000
Of the top 10 percent there will be room for all	52,000	
Of the 2d 10 percent there will be room for only	20,000	
	72,000	

If all the top 10 percent go to college, only about 2 out of 5 in the second 10 percent will be able to find a place. None in the third 10 percent or below will be able to go.

If the deficits in facilities are allowed to develop, no one in the second quarter of his high school class should count on getting into college.

The social loss in undeveloped skills resulting from the deficits in facilities would represent a disastrous waste. Such a waste of brainpower coming at a time of urgent national need would be subversive of the best interests of the country. Failure to develop needed facilities will be clear evidence of negligence.

The personal tragedies which would result from the deficits will be apparent to anyone who knows young people.

Conclusion—All existing facilities and all planned expansions of private colleges and the maximum use of present public colleges will not meet the anticipated demand for higher education in the next two decades. Severe shortages will develop in almost every part of the state, in residential facilities, in certain areas of undergraduate study, in graduate work, and in other post-high school training.

The deficit in facilities will result in serious personal and social loss.

CHAPTER IV

What Programs Are Proposed to Handle the Expected Enrollments?

Summary

Introduction—If the expectations concerning full-time undergraduate demand are close to the actual event, and if no new facilities are provided, by 1963 there will be 28,000 qualified young people for whom there is no place in college. By 1973 there will be 83,000 students with no place to go.

There are certain basic principles by which any plans should be judged.

Programs should be long-range.

Solutions should be comprehensive.

Quality in education should be stressed.

Equality of opportunity in education should be assured.

Each institution, public or private, should contribute to the solution.

Programs should be flexible enough to meet changing social situations.

All developments should be continuously examined and evaluated.

The programs should be acceptable to student and parent opinion.

I. Four broad programs in higher education have been suggested to meet the problem:

   A strengthened state university;

   Expanded engineering education facilities, residential and non-residential;

   Four-year colleges, residential and non-residential;

   Community two- and four-year non-residential colleges.

II. The structure of a state-wide educational system is a matter of public policy which deserves extended study.

III. Tuitions, fees, and charges for residential facilities at public institutions are a matter of public policy requiring further study.

IV. Four other related areas have been discussed by the Advisory Commission and are noted as examples of the diversity of problems involved in higher education:

   Improved secondary school and college guidance programs;

   Contractual relations between the state and other states or between the state and private colleges to secure the use of specific types of facilities;

   Scholarship programs based on merit and need;

   Increased efficiency in the use of space and staff.

Conclusion—Invention is as essential in higher education as it is in science and industry. The new problems developing will not be solved by simple solutions and perhaps not by combinations of existing solutions. If the difficulties are to be handled, New Jersey will need the help of her most creative citizens.

Introduction—If the expectations concerning full-time undergraduate demand are close to the actual event, and if no new facilities are provided, by 1963 there will be 28,000 young people for whom there is no place in college. By 1973 there will be 83,000. The extent of the problem can be understood when it is realized that in 1954-55 all the colleges in New Jersey enrolled only about 27,000 full-time undergraduates.

It is necessary to enquire concerning possible solutions. Certain basic principles by which any plans must be judged include:

1. *Programs should be long-range.* Barring a national catastrophe, there is every likelihood that the numbers of young people wanting to go to college will increase steadily for at least the next two generations. By 1973, the "war babies" of 1943 and 1946 will have children in kindergarten; by 1990 these children will be in college.

2. *Solutions should be comprehensive.* No half-way measures will suffice to handle the future enrollments. New Jersey has to do more than almost any other state in expanding facilities for higher education.

3. *Quality in education should be stressed.* This is such an obvious principle that it needs little discussion. No child should be forced to take "second-best." At his own level and in terms of his own potentialities each must have a chance at the very best.

4. *Equality of opportunity in education should be assured.* This again is an obvious principle. Each young person should have as good a chance as any other.

5. *Each institution, public or private, should contribute to the solution.* Each college in its own way and in accordance with its own mission has a contribution to make to higher education in the state.

6. *Programs should be flexible enough to meet changing social situations.* Since no one knows for certain what the future will develop, it is wise to plan so that necessary changes can be made efficiently and promptly.

7. *All developments should be continuously examined and evaluated.* Without this principle any program will deteriorate. No solution is final; there is no magic formula. Only by constant evaluation can value be maintained.

8. *The programs should be acceptable to student and parent opinion.* If solutions are offered which nobody really wants, students will be disgruntled, halfhearted, and disloyal. One of the values of college to the young is the feeling of belonging to a broad community. The first step in establishing such a feeling is the development of pride in the institution. This step cannot be taken by students who feel they are being short-changed educationally.

I Four Broad Programs in Higher Education Have Been Suggested to Meet the Problem:

A strengthened state university;
Expanded engineering education facilities,
residential and non-residential;
Four-year colleges, residential and non-residential;
Community two- and four-year non-residential colleges.

Since this report is exploratory and is not designed to establish policy, the plans discussed should be considered only as illustrations of possible programs. The four types of institutional organization treated in this section by no means exhaust the possibilities. They illustrate a few of the ways in which the increasing enrollments might be met. Each type serves a distinct and important function; none takes necessary precedence over any of the others.

A strengthened state university. A university serves four major functions in higher education.

1. It can promote extensive research. The free inquiry of research complements the free enterprise of our economic system and the free choice of our political system. The success of our society depends on the continuous examination of old ideas and the constant development of new ones.

2. The university, offering a diversity of courses, will enable the youth of the state to secure instruction in fields of their choice. Procedures can be developed for transfer to the university by students whose interests cannot be served at other institutions.

3. The university in its graduate instruction will serve several major objectives of higher education. Probably the most important involves training the youth of New Jersey for professional careers.

   One New Jersey student was enrolled in graduate school in 1954-1955 for every three in full-time undergraduate study. This was far above the national ratio of one to seven (U. S. Office of Education ref. i). Almost one-half the New Jersey residents graduating from New Jersey colleges in 1955 declared they sometime intended to enter graduate study (Survey Study c). Graduate enrollments in New Jersey, 5,000 in 1954, are expected to reach 12,000 in 1963 and 27,000 in 1973 (see page 55). It is apparent that New Jersey graduate facilities will have to be expanded if New Jersey citizens are to obtain professional training.

   Graduate schools of universities are of crucial importance in another respect. They are the source of supply for most college teachers. In New Jersey the difficulties in staffing colleges will be severe. Three factors create the problem:

First is the tremendous potential undergraduate enrollment. In New Jersey, in March 1955 there were 2,159 full-time faculty members for 27,154 full-time students, a ratio of about 1 to 13 (N. J. Dept. Ed., ref. b). If this ratio is maintained, and if the anticipated enrollments develop, there will be needed in New Jersey in 1963 over 5,200 faculty members to handle only the New Jersey residents in full-time undergraduate work. If part-time students, graduate students, and students from other states are added, the demand for faculty would probably exceed 6,000. In seven years, by 1963, the staff must triple; in seventeen years, by 1973, it would probably have to number over 10,000.

The second factor is the competition of colleges with industry for capable and creative personnel. Surveys of the future demand for skilled people are awesome if not alarming. (See pages 24 and 28.)

The third factor is a result of the low-birth rates from 1933 to 1940. Young people born in these years will be from 23 to 30 years of age in 1963. When the student demand hits its first peak the number of potential faculty members will be at a 30 year low. So far as the teaching profession is concerned, the relative size of the supply group will lag from ten to fifteen years behind the demand. Since the quality of staff largely determines the quality of education, this situation will pose serious problems. (See also p. 52.)

4. The university performs broad public service. The increasing tendency of the community, the state, and the nation to call on the faculties of universities for advice illustrates a fourth major function of a state university. Trained in investigation, objective, and independent, college faculties are a consultative resource of major value. In the university society can assemble a stand-by group of experienced and unprejudiced advisors ready to help with almost any sort of problem. In this area of service the State University has a special obligation. Supported by the citizens of the state, it is directly responsive to their needs in its research and consultative activities.

Expanded engineering colleges. That New Jersey has an apparently insatiable need for engineers has already been stressed. Present and planned facilities for engineering education in New Jersey will accommodate at most 4,300 undergraduate students, while estimated in-state enrollments are 6,600 in 1963 and 12,500 in 1973. (See p. 53.)

Engineering education is expensive—requiring highly trained faculties, special equipment, and extensive laboratory facilities. Since it is more economical to concentrate engineering education in a few centers than it is to have many small duplicating institutions, some residential facilities should be provided so that young people from all over the state might have equal

opportunity. Other institutions located in major metropolitan areas might be wholly non-residential.

It would be feasible, if quality is adequately controlled, to offer the first two-years of engineering education widely throughout the state. This can be done with relatively inexpensive equipment and less specialized faculties, enabling other institutions to concentrate on more advanced undergraduate and graduate instruction.

Extensive graduate programs in engineering should be developed. Graduate programs give depth and strength to the undergraduate work. They provide industry with top level personnel, and serve as one source for faculty recruitment.

Four-year colleges with residential and non-residential facilities. A recent development in higher education in many states has been the emergence of four-year multi-purpose colleges. The services rendered by these colleges follow no fixed pattern, though typically they offer work in teacher education, liberal arts, and in a limited number of other fields.

By virtue of their residential function, colleges of this type offer to students from remote areas some of the advantages that accrue from relatively large faculties, strong libraries, and specialized equipment. At the same time they serve students who prefer to commute to college daily. Such colleges can be located where their economic influence would be beneficial to the state and relieve what will apparently be a serious deficit in residential institutions. (See p. 49.)

Some, all, or none of the six existing state teachers colleges might develop into multi-purpose institutions. Evaluation of the quality of teacher education at such institutions would be required before any final decisions were made. It is apparent, however, that the demands for teacher education in the state will require expansion of the state teachers colleges or the establishment of new ones. (See p. 52.)

Community two- and four-year colleges. Non-residential colleges established where they can serve a large group of commuting students have developed remarkably since World War II. New Jersey has several successful examples serving many students. Some community colleges have started as four-year colleges; some started as junior colleges and developed into four-year institutions; others have remained two-year schools. The name "junior college" here applies only to two-year colleges of the community type. It does not include those two-year colleges which are typically private residential colleges for girls.

Community colleges whether two-year or four-year perform several important educational functions:

1. They serve as community centers responsive to the needs of their constituency in post-high school education and in adult education. They bring to the community a center of information and culture which supplements the work of the secondary school. Being flexible institutions they can, if their size permits, offer work in almost any subject field.

2. Junior colleges within a community can provide the first two years of the college curriculm, enabling students to prepare for the more intensive upper division and graduate work of later years. Sometimes four-year community colleges offer their programs on a "two and two" basis with students making a new matriculation at the same institution after the first two years.

3. Community colleges are in an excellent position to stimulate the search for and development of talent.

4. They can give "terminal" two-year courses, emphasizing the skills and techniques important to the development of the community and the state and offering educational opportunity to all youth.

5. Community colleges can give a basic general education beyond the high school level. As the economic and human problems in our society grow more complex, it seems necessary to extend education in these areas. Aspects of social development necessary in a modern democracy apparently require an analysis more extended and more complex than most sixteen and seventeen year olds can handle.

6. Community colleges widely established and well supported would go far toward meeting the increasing demand for facilities. In fact they would serve the society's need for trained personnel by making college available to many who would not otherwise have gone. A comprehensive system of community colleges would probably increase the proportion of New Jersey young people entering college to almost 50 percent of the 18 year-olds. In California where there is a comprehensive system, first-time enrollments in November 1955 were 69% of the age-group, of these roughly two-thirds were full-time undergraduates, making 45 percent of the age-group entering full-time college. (U. S. Bureau of Census, ref. a,Volume II, Part 5; U. S. Office of Education, refs. f, i.)

II The Structure of a State-wide Educational System Is a Matter of Public Policy Which Deserves Extended Study

The structure of a system of higher education relates to all the problems: cooperation of state and local authorities, coordination of facilities, flexibility, budget control, location of institutions, quality control, curriculum planning,

political pressures, autonomy of faculties, financing, articulation with high schools, graduate facilities, research programs, field service by faculties, and a host of other problems.

It is not within the province of this survey to examine the various existing or proposed organizational plans. The problems and pressures in each state differ, with the result that there are forty-eight different plans. The major problem is one of achieving a balance between autonomy of professional decision and responsiveness to social demands.

III Tuitions, Fees, and Charges for Residential Facilities Are a Matter of Public Policy Requiring Further Study.

These questions are beyond the scope of this survey though they profoundly affect both the quality and quantity of higher education. A few points may be mentioned.

Unit costs of higher education should be determined in as great detail as possible. Only then can policy decisions be made on a basis of facts. That such determination of unit costs can be achieved is illustrated by the study of the National Federation of College and Business Officers Associations. (See bibliography.)

Residential and other income producing facilities should be cost-accounted separately. Decisions concerning the extent to which such facilities should be self-sustaining could then be made a basis of reliable information.

The impact of tuitions on enrollments should be studied with a view to determining the social effects of fixed or variable tuitions. Tuition variation can be a powerful social instrument for encouraging students to take certain courses, as well as for assuring equality of opportunity.

IV Four Related Areas Have Been Discussed by the Advisory Commission and Are Noted as Examples of the Diversity of Problems Involved in Higher Education:

Improved secondary school and college guidance programs;

Contractual relations between the state and other states and between the state and private colleges to secure the use of specific types of facilities;

Scholarship programs based on merit and need;

The more efficient use of staff and facilities.

Improved secondary school and college guidance programs.

This is mentioned for its important bearing on higher education in general. Advantages to be derived from an improved system of guidance would include: discovery and encouragement of gifted students, more rewarding education for all students, better and more uniform data for research into social and educational problems. In this connection it may be noted that the Commissioner of Education in New Jersey has the power to conduct state-wide tests in the schools whenever he deems it advisable (N. J. Department of Education, ref. d, V. 1, No. 6).

Contractual relations between the state and other states or between the state and private institutions to secure the use of specific types of facilities.

Programs of interstate cooperation in higher education have been widely developed in recent years. Only New York, New Jersey, and Pennsylvania are at present not involved in such compacts according to John Popham in *The New York Times,* June 5, 1955.

Such programs deserve thorough study. New Jersey might profit by arranging with another state or with a private institution for the use of highly specialized facilities, thus avoiding duplication of costs and encouraging the exchange of ideas.

Scholarship programs based on merit and need.

Scholarship and aid programs have increased rapidly in the past decade. The reasons for their development are fairly obvious—to promote opportunity, to enlist the gifted, to encourage young people to enter certain special fields.

Suggestions have taken a variety of forms from the Tax Credit Plan of the American Council on Education (1955), which would provide a certain amount of income tax credit for tuition payments, to proposals for joint grants to the student and the institution he attends. Other proposals include state scholarships, national merit scholarships, expanded work programs, and corporation grants-in-aid.

Substantial study is in progress on the matter of scholarships and a large body of literature is available. Since, however, the question of student aid touches only tangentially on the question of facilities, extended discussion is not in order.

One frequently made proposal is discussed below to illustrate the need for thorough study of the area. It has been suggested that New Jersey should institute a system of state scholarships similar to those of the New York State Regents.

In New York, according to Peter P. Muirhead (1955), Chief of the Bureau of Examinations and Testing of the University of the State of New York, 5,238 awards are granted annually for merit for an annual value of the full program of $7,338,200. Under full operation in New York, some 20,600 students will be receiving stipends of about $350 per year for use in any

accredited college in New York. Scholarship holders in medical and dental education receive $750. The New York State system is being expanded to include special stipends for engineering students and there are indications that a "need" factor will be introduced. (*The New York Times,* May 20, 1956.)

A program for New Jersey comparable to New York's would come to an annual full value of about $2,500,000, or $350 yearly to each of 6,800 needy and worthy students for use at any accredited college in New Jersey. This would represent a considerable departure from present practice. The State Department of Education (ref. d. Vol. 1, No. 3) reports that the State of New Jersey awards throug' the State University approximately $400,000 per year for tuition scholarships to about 1,000 students on a basis of merit and need. These scholarships are allocated by county population. The state also grants tuition scholarships to approximately 10 percent of the students at the State Teachers Colleges on a basis of merit and need, and awards work scholarships for not more than 25 percent of the total enrollment at the teachers colleges.

The more efficient use of staff and facilities.

The most efficient possible use of space and staff would help meet the problem of increasing enrollments. For example, an increase in the use of classroom space from 20 to 30 hours per week would increase the capacity of that space by 50 percent.

Value judgments by educational authorities are always involved in the application of formulas for measuring space utilization. For this reason such formulas cannot be applied uncritically. Nevertheless they do give an objective base for evaluating the use of facilities and enable the value judgments to be isolated for examination through controlled experiment.

A fuller discussion of this matter appears in a separate publication of the Survey. Briefly, a few of the possible ways of improving space utilization are: fuller scheduling, using non-instructional space when it is not otherwise occupied, increasing the daily hours of operation, extending the work week and the work year. Some suggestions for improving staff utilization are: equalizing teaching loads, reducing the proliferation of courses, experimenting with electronic devices and teaching assistants, increasing the use of libraries by putting more responsibility on students.

Conclusion—It is safe to predict that the programs of higher education finally developed in New Jersey to handle the impending increases in enrollments will be diversified and flexible. The problem is so big that no magic formula will work. Every resource of the state will have to be enlisted.

CHAPTER V

Can New Jersey Afford Higher Education for Its Young People?

Summary

Introduction—Several possible aspects of this question are discussed.

I. New Jersey citizens now pay a great deal for higher education for their young people.

It is estimated that New Jersey citizens now pay close to $100-million yearly for all sorts of higher education.

The costs of undergraduate education in the future will be high but not overwhelming.

II. New Jersey can afford higher education better than most other states.

New Jersey stands fourth among the states in per capita income but only at the national average in college sending.

New Jersey was last in the nation in 1954 in dollars of total state revenue per capita.

New Jersey was forty-fourth among the states in net state expenditures for higher education in 1954.

III. Higher education contributes vitally to the political, social, and economic health of the state.

Conclusion—Higher education should be considered a form of investment in the development of the state.

Introduction—Several aspects of this question are discussed in the following sections.

I New Jersey Citizens Now Pay a Great Deal for Education for Their Young People

Whether directly or indirectly, through taxes, or personal payments, or prices, or losses, the citizen pays all the costs of higher education. He pays, also, all the other costs of society. The citizen has no escape from the costs implicit in a complex urban society. The most he can do is decide where his money is to go. Citizen's decisions concerning the expenditure of funds for the welfare of young people are among the most important decisions in society.

The transition from childhood to adult life, in the years from 18 to 21, is crucial in the development of citizenship. It is then the teachings of the society solidify into patterns of responsibility or irresponsibility. Then the techniques of peaceful change are learned, and the skills and attitudes which produce creative citizenship are developed.

A society to preserve its forms and to assure ordered and responsible change and growth must educate its young people. New Jersey citizens

recognize this, and now pay out close to $100-million yearly for higher education.

TABLE V-1

Estimate of Outlay for Higher Education by New Jersey Citizens, 1954-55, In-State and Out-of-State through Taxes and Personal Payment

48,000 full-time undergraduates @ $1750. (Average cost for essentials—including minimum residential costs.)	$84,000,000
14,500 part-time undergraduates @ $250. (One-third tuition and fees plus essentials—books, commutation.)	3,625,000
15,500 full-time and part-time graduates @ $500. (Estimated figure allowing for part-time.)	7,750,000
4,000 extension students for credit @ $50. (Fees only.)	200,000
2,800 extension students not for credit @ $50. (Fees only.)	140,000
1,600 adult education students @ $50. (Fees only.)	80,000
	$95,795,000

Source: U. S. Office of Education, ref. i; Survey estimates.

This is a tremendous bill for higher education—$95,800,000. It amounted to almost 8 mills of every dollar earned in the state—about $17.84 per capita.

The costs of undergraduate education in 1973 will be high but not overwhelming.

From 1946 to 1954, the total income of citizens of New Jersey increased from $6,886,000,000 to $11,769,000,000 or 70.9 percent (U. S. Dept. of Commerce, ref. a). While some years were better than others the average comes to about 7 percent increase per year. This is a spectacular rate of growth and is caused by three principal factors: inflation, population increase, and increased productivity per capita.

In this period price indexes increased by 37.6 percent. (U. S. Dept. of Labor, ref. b). When the total yearly incomes of citizens of New Jersey for the years 1946 to 1954 are corrected for inflation, the average gain per year over the year before comes to almost three percent.

Taking 3 percent per year as a reasonable expectation of real income increase for the next 20 years, estimates of total real income can be derived for the key years of the study. (This percentage increase assumes continued population gain at recent rates since population increase was a factor in the general income increase from 1946 to 1954.) Table V-2 shows estimates of total income based on a real increase of 3 percent per year.

TABLE V-2

Estimated Real Income in New Jersey Based on 3 Percent Increase Per Year Compounded Yearly (Millions)

1954-55	1958	1963	1968	1973
$12,122	$13,247	$15,356	$17,803	$20,639

(The specific years in the above and following tables should be considered only as typical since temporary variations in the economy cause variations in total income.)

Instructional and administrative costs are about $800 per student per year, and will come to about $.0075 per citizen dollar in 1973.

The total operational costs in 1954-55 of three non-residential State Teachers Colleges in New Jersey (taken to avoid residential complications) were divided by the total number of full-time students. The cost per student year was $631. (N. J. Dept. of Ed., ref. e.)

Estimated costs per student for instruction and administration at ten California State Colleges (at 32 credit hours) ranged from $566 to $1,419.35, the average cost being $668.16. (California Restudy, p. 426.)

For a proposed community college on Staten Island the anticipated eventual cost of instruction and administration for 1,000 students is $800,000 or $800 per student. (New York City, Bd. of Higher Ed., ref. a, p. 10.)

In another study the Board of Higher Education of New York City (ref. b, p. 18) estimates per student operating costs for community colleges will be $675 for the period 1955-1959.

Average costs of operation per full-time student for four different types of colleges (506 in all) in 1952-53 were reported by the U. S. Office of Education (ref. j). Highest average costs were for 184 "non-denominational, independent liberal arts colleges" at $1,060. Lowest were for 24 "Catholic colleges" at $702. "Federal, state, and municipal colleges," 113 in all, had average costs of $798. Average costs of $808 per student were found at 125 "Church-related colleges (non-Catholic)."

If $800 is taken as a probable cost in 1954-55 and a gradual increase in the real cost of higher education is assumed, Table V-3 can be derived.

TABLE V-3

Anticipated Number of Students, Cost Per Student for Instruction and Administration Only, Total Cost to Citizens of the State, through Taxes and Personal Payment

	No. of Students	$ Cost per Student	Total
1954-55	48,000	800	$38,400,000
1958	61,000	850	51,850,000
1963	94,000	900	84,600,000
1968	136,000	950	129,200,000
1973	155,000	1000	155,000,000

Source: See text.

This is the cost for instruction and administration in undergraduate work only. It does not include board and room and special auxiliary services. For expensive curricula such as engineering the cost estimates would be too low. It should also be remembered that many colleges already charge $900 or more yearly tuition and depend on endowment funds to supplement this.

If the estimates in Table V-3 are compared to the estimates of state income, Table V-4 appears.

TABLE V-4

Costs of Undergraduate Instruction and Administration, Total Income and Proportion of the Total Income

	Total Costs (millions)	Projected Total Income (millions)	Cost per Dollar of Income
1954-55	$38.4	$12,122	$.0032
1958	51.8	13,247	.0039
1963	84.6	15,356	.0055
1968	129.2	17,803	.0073
1973	155.0	20,639	.0075

These are the estimated operating costs excluding board and room which will be paid directly or indirectly by New Jersey citizens under the assumed conditions. The 1973 cost comes to about 8 tenths of a mill per dollar of projected income. If the population goes to 7,250,000 by 1973 the cost per capita would be $21.38 per year.

Note that the percent of the total income for higher education rises. This is partly because it is assumed the cost per student will rise, but more important is the fact that the number of young people going to college will increase faster than the population as a whole. The index of estimated total population growth 1954 to 1973 is about 138, the index of college-age-population growth 1954 to 1973 is 202, and the index of probable enrollment increase is 323. The increase in the percentage of income for higher education is a result of high birth rates and increasing proportions of the age-group entering college.

Costs of board and residence have been deliberately omitted from the above calculations because these facilities are income producers which should be cost-accounted separately, because there is abundant evidence that they can be largely self-sustaining, and because their quality and therefore their cost varies greatly even within institutions.

Whether expenditures are for residence or instruction they remain part of the circulating income of the state. The money expended does not disappear but contributes to the personal incomes of the citizens of the state.

Costs of buildings for instruction and administration are about $4,000 per student. Carrying charges for necessary building would amount by 1973 to about $.00060 per income dollar of the citizens of this state.

Insurance estimates of replacement costs for facilities at three non-residential New Jersey State Teachers Colleges come to $3,195 per student when the colleges are operated at capacity. (N. J. Dept. of Ed., ref. e and g.)

A new New Jersey State Teachers College is estimated to cost $3,450 per student in 1955. (N. J. Dept. of Ed., ref. f.)

Estimated non-residential building costs for California State Colleges to accomodate 43,000 students come to $136,440,000 or $3,173 per student. (California Restudy, p. 357, 359.)

It is estimated that a proposed community college on Staten Island would cost $4,500,000 for 1,000 students or $4,500 per student. (N. Y. C. Bd. of Higher Ed., ref. a, p. 11.)

If $4,000 per student is taken as a cost figure for new instructional and administrative buildings, Table V-5 shows the value of new building required to meet the anticipated student demand over and above all private and out-of-state expansion and saturation usage of existing public facilities.

TABLE V-5

Needed Undergraduate Instructional and Administrative Facilities by Various Periods. Cost at $4,000 Per Student

1958	2,000 unplaced students	$8,000,000
1963	26,000 unplaced students over the 2,000 above	104,000,000
1968	39,000 unplaced students over the 28,000 above	156,000,000
1973	16,000 unplaced students over the 67,000 above	64,000,000
		$332,000,000

These costs do not include residential or other income producing facilities. It is better accounting to separate these income-producing activities from the other aspects of college financing. There is evidence that these facilities can be made largely self-liquidating. (See Millett, 1952, p. 288.)

In Table V-6 are presented the carrying charges for the needed facilities calculated at 2.5 percent for 40 years (N. J. Highway Improvement Bonds were issued in April, 1955 at 2.2 percent—N. J. Department of Treasury, 1956).

TABLE V-6

Capital Costs for Non-Residential Facilities (2½ Percent for 40 Years) and Proportion of Estimated Income from Table V-2

	Amount Carried millions	Annual Payments millions (a)	Cost per Dollar of Total Income
1958	$8.0	$.300	$.00002
1963	112.0	4.200	.00027
1968	268.0	10.050	.00056
1973	332.0	12.450	.00060

(a) Yearly payment equals $\frac{\text{Principal} \times .025 \times 40}{40 \times 2}$ plus $\frac{\text{Principal}}{40}$

Source: See Text.

By 1973 the cost for the development of the capital facilities necessary to handle the aspiring students would amount to just over one half a mill per dollar of estimated state income, or about $1.70 per capita for an estimated population of 7,250,000 persons.

It should be noted that expenditures for buildings become part of the income circulation of the state as does the interest paid on bonds. The buildings themselves become part of the wealth of society.

II New Jersey Can Afford Higher Education Better Than Most Other States

New Jersey stands fourth among the states in per capita income (5th, if D. C. is included), but only at the national average in college-sending.

Table V-7 shows how New Jersey compares with certain other states in the proportion going to college and in income per capita. (See also p. 14.)

TABLE V-7

Ratio of Full-Time Undergraduate Residents of the State to 18-21 Age Group of 1954 and Per Capita Income, 1954, for Various States

	Proportion of Full-time Undergraduates 18-21 year group	Per Capita Income 1954
NEW JERSEY	20.2	$2219
Utah	33.7	1483
California	30.6	2162
Massachusetts	24.9	1922
Connecticut	23.1	2361
New York	23.0	2163
National	19.8	1770

Sources: U. S. Office of Education, ref. h, i; U. S. Dept. of Commerce, ref. a (calculated).

California with about the same income per capita sent a greater proportion to college than New Jersey. Utah, with only two-thirds the New Jersey income per capita, sent a far greater proportion to college.

Perhaps some of the reason for New Jersey's lag in higher education may be seen in the following:

1—New Jersey is last in the nation in dollars of total state revenue per capita.

In 1954 New Jersey collected $60.72 per capita, of which $39.85 was from taxes. Kentucky was the next to the lowest state in total revenue per capita with $69.45.

New Jersey remained in last place in 1955 with a total state revenue of $65.19 per capita, of which $44.90 was from taxes. The National average in total revenue was $101.00. (U. S. Bureau of the Census, ref. d.)

2—New Jersey was forty-fourth among the states in net state expenditures for higher education.

The New Jersey State government spent in 1955 a net of $10,900,000 (excluding capital outlay) for higher education, about $2.06 per capita or slightly less than 1 mill per dollar of the total income of the citizens of the state. Tables V-8 and V-9 show some pertinent relationships. (U. S. Bureau of the Census, ref. d.)

TABLE V-8

Revenues of Certain State Governments Per Capita; Net Expenditures Per Capita on Higher Education; Expenditures on Higher Education Per Dollar of Income. Excludes Capital Outlay and Commercial Income. (1955)

	State Revenue per Capita	State Expenditure per Capita	Rank	Per Income Dollar Expenditure
NEW JERSEY	$65.19	$2.06	45	$.00093
California	147.87	10.40	2	.00481
Connecticut	99.97	3.42	32	.00145
Massachusetts	95.83	1.40	47	.00073
New York	94.42	2.11	44	.00098
Utah	113.70	11.68	1	.00788
Vermont	101.69	1.36	48	.00097
NATIONAL	101.00	4.45	..	.00251

Source: U. S. Bureau of the Census, ref. d (calculated).

TABLE V-9

Net Expenditures (a) for Higher Education Per Capita by the State Governments of the Ten Highest and Ten Lowest States (1955)

Highest 10	Net Expenditure for Higher Education by State Government per Capita in Dollars	Lowest 10	Net Expenditure for Higher Education by State Government per Capita in Dollars
	U. S. Average—$4.45		
Utah	11.68	Maine	2.77
California	10.40	Georgia	2.67
Wyoming	9.05	Mississippi	2.26
Washington	8.95	Kentucky	2.21
New Mexico	8.76	Missouri	2.17
North Dakota	8.27	New York	2.11
Montana	7.50	NEW JERSEY	2.06
Minnesota	7.47	Pennsylvania	1.52
Michigan	6.92	Massachusetts	1.40
Oklahoma	6.82	Vermont	1.36

(a) Excludes capital outlay.

Source: U. S. Bureau of the Census, ref. d (calculated).

3—New Jersey as a state has been able to economize on state expenditures for higher education because private citizens have footed the bill. These private citizens have sent many of their young people outside the state to college.

It is probable that a state saves no money by sending its young people out-of-state to be educated.

Three obvious sources of income were lost to New Jersey in 1950:

a. *Net tuition and residence payments by citizens to out-of-state institutions.* These are estimated at $72-million for 47,836 New Jersey students of all sorts in other states. (Estimated at $1,500 per student.) (U. S. Office of Education, ref. h.)

b. *Grants from the federal government for research and other purposes.* In 1950 the federal government granted to all higher education $199,000,000 (not including veterans' fees). New Jersey received in the same year $2,300,000 or 1.2 percent of the total. In 1950 New Jersey citizens earned, and were taxed on, 3.9 percent of the national income. If New Jersey had received federal funds in proportion to the state's income, it would have been granted $7,500,000. (Council of State Governments, 1952, pp. 205, 236; U. S. Dept. of Commerce, ref. a.)

The National Science Foundation (1953, ref. a) reports that New Jersey educational institutions received only 1.7 percent of the funds granted for research to educational institutions in 1951. In 1952 New Jersey's share was 1.3 percent. That these small portions are a result of New Jersey's lack of colleges may be seen from the (1952) percentages granted states with many institutions: California, 29.7 percent; Illinois, 13.4 percent; New York, 11.9 percent; Maryland, 6.0 percent. New Jersey educational institutions in 1952 received federal grants of $4.5-million. Institutions in Massachusetts, a state with a smaller population and a smaller per capita income, received over $40-million.

c. *Endowment income and gifts accruing to institutions of higher education.* In 1950 institutions of higher education in the U. S. received $214,900,000 in endowment income and gifts. In the same year institutions in New Jersey received $5,300,000 or 2.5 percent of the total. If New Jersey institutions had received in proportion to the wealth of the state, they would have received $8,300,000. (Council of State Governments, 1952 p. 205 and 236.)

In 1950 New Jersey citizens contributed to higher education outside the state through tuitions and fees, federal grants, and gifts an estimated $80-million. This amount, expended within the state for all the manifold services required by institutions of higher education, would have amounted to about $16.50 per capita.

If to this amount is added such costs as travel, entertainment, clothing, and parental visits, the total amount spent outside the state in 1950 probably came close to $90-million, about six times as much as New Jersey received from out-of-state students coming to New Jersey.

III Higher Education Contributes Vitally to the Political, Social, and Economic Health of the State

Higher education supports our economic development.

The Chamber of Commerce of the United States in its *Education—An Investment in People* (1954, p. 2-8) shows that the higher the level of education:

The more the individual produces;
The more the individual earns;
The more the individual consumes.

Higher education supports political democracy.

The Chamber points out in the same study (p. 10):

"Education is essential to self-government and the protection of our political freedom." An Elmo Roper study conducted for the Standard Oil Company of New Jersey is cited:

	Politically Active %	Completely Inactive Politically %
College educated	52	18
High school educated	26	34
Grade school educated	16	51

The wealth of a community comes from efficient production, and efficient production comes from research.

M. H. Trytten (1955, p. 8), an advisor to the Engineering Manpower Commission, in an address to the Military Industrial Conference on Technical Manpower said:

"Our economy is one of competitive, free enterprise. To be healthy it must grow. And the growth and expansion of industry today is almost wholly based on the results of technology. Research, development, and design are the basic factors in the growth and proliferation of products and production. These depend directly on science and engineering.

"Furthermore, the whole future of our economy and of our way of life is dependent on solving an emerging problem of raw materials and natural resources, from water and water resources to minerals and the growths of the soil. These problems will inevitably increase in severity and can only be solved by research.

"Finally, as far as non-military problems are concerned, there is a growing host of problems which arise where no serious problems arose before, simply because of the growth of the population and the complexities of modern life. Such problems are those of transportation, air, surface and water, and its congestion, health problems, problems of communication, publication and the like. In each of these areas, and others, whole complexes of research problems arise whose solutions are imperative if our civilization is to continue, which were never problems before, and which are sufficiently difficult and complex to require substantial research efforts and professional application by high-grade minds."

Some examples of the "return" on research may be cited:

"The conquest of Newcastle Disease has been estimated to represent an annual saving of at least $150,000,000 to the poultry industry of the United States. The virus of this disease was first isolated and identified some 8 years ago at the New Jersey Agricultural Experiment Station." (Agricultural Experiment Stations in the United States and Territories, 1954, p. 56.)

"From the time of its establishment in 1880 (to 1947), the New Jersey Agricultural Experiment Station has spent some $18-million of Federal, State and special endowments on its entire research program. It is of interest to note that since 1945 (to 1947) some 20 or 30 million dollars have been invested by industry in buildings and equipment for the production of streptomycin (discovered in N. J. Station research). Although production is still far from its peak, its current value is estimated at more than four million dollars a month." (Association of Land-Grant Colleges and Universities, 1948, p. 4.)

Much basic research pays off in dollars though years may pass between the faint beginnings of an idea and its commercial application. But more important than the immediate practical application is the search for meaning in the world. Most astronomy has little cash value, but it has immense importance to human beings seeking to understand the universe.

Research and education in basic science underlie all of our technology. Research and education in the social sciences form the background for the peaceful solution of social and economic problems. Study and participation in the humanities and the arts are essential if citizens are to be mature and free. These are all "returns" on investments in higher education.

Conclusion—Higher education contributes directly to the wealth of the state. Increases in wealth depend on the products of successful higher education: scientific discovery, economic productivity, and political and social maturity.

If the citizens of New Jersey provided higher education in 1973 for all full-time undergraduates not accommodated at out-of-state colleges or at New Jersey private colleges, the total cost for instruction and instructional facilities would be about 6 mills per dollar of income.

Higher education should be considered a form of investment in the future of the State.

Appendix 1

Colleges of New Jersey, November 1954, and Expansion Plans

Sources: For columns 4, 5, 6, and 7, U. S. Office of Education, ref. i, Circular No. 454 and N. J. Department of Education, ref. b, were used. Column 8 was derived by applying ratios of N. J. students to out-of-state students (N. J. Department of Education, ref. b) to Column 4. Columns 9 and 10 are based on plans reported by the colleges. Enrollments estimated to nearest 10.

Institution	Location	Control & Type (See Notes)	Full-time undergraduates (a)	Part-time undergraduates (a)	Extension for Credit (a)	Full- & Part-time graduate students	Full-time undergrads. from N. J.	Future full-time undergrads. from N. J.	Residence space (b) for N. J. students in the future
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Alma White	Zarephath	h-j	20	10	..	..	5	20	20
Assumption Junior College	Mendham	h-k	20	1	..	..	20	20	20
Bloomfield College & Sem.	Bloomfield	h-j	140	2	..	20	100	630	190
Caldwell College for Women	Caldwell	h-k	210	90	..	..	180	450	40
Centenary Junior College	Hackettstown	i-k	460	..	..	..	160	180	160
College of St. Elizabeth	Convent Station	h-k	470	5	..	..	300	600	300
Don Bosco (Seminary)	Newton	h-l	70	1	..	..	10	20	20
Drew University	Madison	h-j	600	50	..	130	360	370	260
Fairleigh Dickinson (c)	Rutherford	i-j	1340	3110(s)	..	..	1260	2500	220(s)
	Teaneck	i-j	620	..	..	..	580	2000	..
Georgian Court	Lakewood	h-k	170	10	20	..	100	300	180
Immaculate Conception Jr. Col.	Lodi	h-k	30	5	..	..	30	30	30
Immaculate Conception Sem. (f)	Ramsey	h-l	90	..	..	180	90	100	100
Institute for Advanced Study	Princeton	i-j	..	..	..	100	..	..	..
Monmouth Junior College (d)	Long Branch	i-j	290	390	..	..	290	2000(e)	100
Mother of the Savior Sem.	Blackwood	h-l	..	..	..	..	..	200	200
New Brunswick Theol. Sem.	New Brunswick	h-l	..	..	..	60	..	..	..
Panzer Col. of Phys. Ed. & Hyg.	East Orange	i-j	180	4	..	..	180	250	40
Princeton Theol. Sem.	Princeton	i-j	..	..	..	570	..	..	..
Princeton University	Princeton	i-l	2940	..	..	580	530	550	550
Rider College (Business)	Trenton	i-j	940	440	..	..	610	1050	500

APPENDIX 1—Continued

Colleges of New Jersey, November 1954, and Expansion Plans

Institution	Location	Control & Type (See Notes)	Full-time undergraduates (a)	Part-time undergraduates (a)	Extension for Credit (a)	Full- & Part-time graduate students	Full-time undergrads. from N. J.	Future full-time undergrads. from N. J.	Residence space (b) for N. J. students in the future
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Seton Hall University (c)	South Orange	h-l	2620	..	..	..	2500	4550	200
	Jersey City	h-j	120	3450(s)	..	870(s)	120	1200	..
	Newark	h-j	40	..	..	..	40	3000	..
	Paterson	h-j	100	..	..	..	100	650	..
Shelton College	Ringwood	h-j	150	20	..	..	50	380	320
St. Joseph's College (Sem.)	Princeton	h-l	40	1	..	..	2	2	2
St. Peter's College	Jersey City	h-l	1500	140	..	..	1260	1350	230
Stevens Institute Technology	Hoboken	i-l	1080	..	..	520	780	900	450
Union Junior College	Cranford	i-j	300	270	..	..	290	500	..
Upsala College	East Orange	h-j	1400	30	190	..	1230	1400	350
Villa Walsh Junior College	Morristown	h-k	10	..	..	..	10	10	10
Westminster Choir College	Princeton	h-j	200	10	..	60	20	50	40
Totals Private Colleges			16,150	8,040	210	3,110	11,200	25,250	4,500

Appendix 1—Continued

Colleges of New Jersey, November 1954, and Expansion Plans

Public Colleges (g) Institution	Location	Control & Type (See Notes)	Full-time undergraduates (a)	Part-time undergraduates (a)	Extension for Credit (a)	Full- & Part-time graduate students	At Capacity (r) Totals Full-time undergrads. from N. J.	At Capacity (r) Totals Future full-time undergrads. from N. J.	At Capacity (r) Totals Residence space (b) for N. J. students in the future
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Jersey City Junior College	Jersey City	m-j	130	420	..	..	130	250	..
Newark College Engineering	Newark	n-j	1320	1120	800	720	1300	2000	..
Rutgers University (c)	New Brunswick	o-l	2470	..	..	..	2300	3800	2250
	Douglass	o-k	1080	4000(s)	1400(s)	2230(s)	1000	1280	1030
	Camden	o-j	270	..	..	..	270	450	..
	Newark	o-j	1560	..	..	..	1560	2500	..
	Paterson	o-j				(ext. only)			
State Teachers Colleges	Glassboro	p-j	430	..	700	..	430	850	280
	Jersey City	p-j	440	..	170	..	440	750	..
	Montclair	p-j	1070	20	50	560	1060	1700	300
	Newark	p-j	650	..	310	670	650	1000	..
	Paterson	p-j	530	370	80	..	530	750	..
	Trenton	p-j	890	360	360	20	880	1150	720
Trenton Junior College	Trenton	q-j	210	30	..	..	200	600	..
Totals Public Colleges			11,050	6,320	3,870	4,200	10,750	17,080	4,580
Grand Totals			27,200	14,360	4,080	7,310	21,950	42,330	9,210

Appendix 1—Notes:

(a) Full-time undergraduates (12 or more hrs. per wk. toward bachelor's degree); Part-time undergraduates (less than 12 hrs. per wk. on campus); Extension (taking credit courses off campus generally under 12 hrs. per wk).
(b) Includes residence in surrounding community.
(c) Distribution among campuses estimated.
(d) Receives some support from county.
(e) Expansion to four-year college possible.
(f) Affiliated with Seton Hall University.
(g) Maximum enrollment estimates include funded building programs.
(h) Church-related.
(i) Independent.
(j) Co-educational.
(k) Women only.
(l) Men only.
(m) Controlled by Jersey City Board of Education.
(n) Joint control, city and State.
(o) Joint control, Trustees and State.
(p) State control.
(q) Trustees appointed by Governor of State.
(r) Using existing facilities to maximum.
(s) All campuses.

Appendix 2

Bachelor's and First Professional Degrees—N. J. Colleges 1953-54

Totals and percentages in certain grouped areas (not complete).
Source: U. S. Office of Education, ref. c; N. J. Department of Education, ref. b.

College or University	Total Enrollment	Total Degrees	Percentages of Degrees in Fields							
			Biol. Phys. Engr. Math.	Social Science Psychology	Human. Arts Lang. Phil.	Religion Theology	Business Accounting	Education	Home Ec. Med. Sci. Nurse.	Other Areas
Alma White	27	3	33	33	33	..	..	..	..	..
Bloomfield College & Sem.	149	36	11	42	19	14	14	..	..	..
Caldwell College, Women	191	43	26	16	37	..	21	..	..	..
College St. Elizabeth	444	138	19	14	17	..	14	21	15	..
Don Bosco	78	22	..	..	100	..	..	..	..	..
Drew	753	155	8	17	6	65	..	..	..	..
Fairleigh Dickinson	3,536	245	21	13	7	..	54	..	5	..
Georgian Court	221	57	5	7	26	..	28	23	11	..
Immaculate Conception Sem.*	281	..	..	..	..	..	..	..	..	..
New Brunswick Theol. Sem.	55	16	..	..	..	100	..	..	..	..
Panzer	158	21	..	..	..	..	..	100	..	..
Princeton Theol. Sem.	457	121	..	..	..	100	..	..	..	..
Princeton	3,416	646	26	41	27	2	..	..	..	..
Rider	1,266	176	..	..	..	..	84	11	..	..
Seton Hall	5,960	759	6	11	15	..	41	14	10	3-Law
Shelton	132	15	..	..	73	27	..	..	..	..
St. Peters	1,627	307	21	15	17	..	47	..	..	..
Stevens Inst. Tech.	1,518	123	100	..	..	..	..	..	..	..
Upsala	1,617	236	17	33	16	..	27	6	..	..
Westminster Choir	258	50	..	..	100	..	..	..	..	..
Newark College Engr.	3,654	232	100	..	..	..	..	..	..	..
Rutgers	11,615	1,559	16	21	10	..	25	4	2	7-Law 6-Pharm. 3-Agri.
State Teachers Colleges	6,493	1,141	..	..	..	..	..	100	..	..
Totals	**43,906**	**6,101**	**17**	**15**	**12**	**4**	**20**	**23**	**3**	**5**

Note: First Professional Degrees include several types which follow the Bachelor's degree.
* Not listed in U. S. Office of Education, ref. c.

APPENDIX 3

Ratio of Full-Time Enrollments to Size of Age-Group

1. If the 17 year-old group is assumed to number 100,000, there will be 35.3% over AGCT 107(a). In numbers this would be 35,300 boys and girls.
2. If 85% of these young people go directly to college from high school (b), there would be 30,000 entering.
3. Some students under AGCT 108 go on to college. National experience shows this number to be 6.9% (c), or, in this case, 6,900.
4. Adding together 30,000 and 6,900 gives the number 36,900 or 36.9% entering college directly from high school. This would be 53% of high school graduates if 70% of the age group graduates, or 46% if 80% of the age group graduates.
5. To this number of entrants may be added 15% of the college freshman class to account for delayed entrants from other age groups (veterans, etc.). This number would be 6,500. Then the total entering college is 43,400 or the equivalent of 43.4% of the original age-group.
6. If every 100 entrants into college average out on a four-year basis to only 70 per year because of attrition (d), there is an average of 70% of 43,400 or 30,400 enrolled at any one time. This is equivalent to 30.4% of the original age group.

The percentage enrolled at any one time may be increased by:

Increasing the attendance of those above AGCT 107 (see 1. and 2. above);
Increasing the attendance of those below AGCT 108 (see 3. above);
Increasing the number of delayed entrants (see 5. above);
Raising the retention rate at the colleges (see 6. above).

NOTES:

(a) Wolfle (1954), p. 314, equates the AGCT (Army General Classification Test) roughly with the more common measure, the I.Q. (p. 143).

(b) Wolfle (1954), p. 314, shows only 38% of those over AGCT 107 entering college.

(c) Wolfle (1954), p. 314, indicates 34% of those entering college are below AGCT 108. The 6.9% conforms with Wolfle's estimates of present experience.

(d) New Jersey's rate for all colleges combined is about 72.

APPENDIX 4

Tuition Costs to Students at Forty-Eight State Universities (1955-56)

(From *The New York Times*, June 10, 1956)

Institution	Residents	Non-Residents	Institution	Residents	Non-Residents
New Jersey (Rutgers)	$420	$530	Wisconsin	$180	$500
New York (Harpur)	400	480	Colorado	172	528
Vermont	360	720	Oklahoma	168	432
Maine	316	551	Kansas	162	322
New Hampshire	309	609	Missouri	162	387
Virginia	294	589	Connecticut	160	410
Delaware	255	545	Nebraska	160	320
Pennsylvania State	252	502	Tennessee	159	384
Rhode Island	245	545	Arkansas	150	350
North Carolina	242	592	Florida State	150	500
Maryland	240	490	South Dakota	148	190
Wyoming	206	416	Indiana	143	390
Iowa	204	424	Massachusetts	139	439
Michigan	200	470	Alabama	135	385
New Mexico	200	400	Montana State	132	207
Utah	199	349	Kentucky	130	250
Oregon	195	405	Nevada	130	400
South Carolina	195	363	North Dakota	129	189
Ohio State	189	564	Idaho	115	265
Mississippi	184	384	California	100	400
Georgia	183	483	West Virginia	90	440
Washington	183	408	Arizona	86	436
Illinois	180	400	Louisiana	70	270
Minnesota	180	447	Texas	60	310

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(b) *High School Survey II*, October, 1955 to March, 1956. Sample—all secondary school in New Jersey—85.9% response. Dealt with proportions of students going to various types of schools, qualified students not going to college, reasons for failure to continue, bases for recommendations, student migration. Full report to be rendered.

(c) *High School Survey III*, February-March, 1956. Sample—9 public high schools biased to include some close to community colleges, 2122 seniors of whom 921 intended to continue in college. Dealt with student preferences for types of colleges and their location. Full report to be rendered.

(d) *Junior College Survey*, June 1955. Sample—all N. J. junior college second year students from N. J., 225 returns, about 75%. Dealt with college transfer intentions. Full report to be rendered.

(e) *Graduate Study Survey*, June, 1955. Sample—all N. J. residents graduating from N. J. colleges, 2,540 returns, about 65%. Dealt with graduate study intentions. Full report to be rendered.

(f) *Out-of-State Survey*, October, 1955 to January, 1956. Sample—79 colleges and universities enrolling 13,700 N. J. residents in full-time undergraduate work. Twenty-two personal visits, 57 mailed responses. Dealt with N. J. enrollments now and in the future. Summary report will be rendered.

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INDEX

Adult education, 65.
Advisory Commission, Inside cover, 3, 66.
Age-groups, 18, 20.
AGCT (See Intelligence), 57, 83.

Birth-rates, 16.
Business administration, 53, 54.

Church-related colleges, 54, 80.
College-age population projections, 19 ff, 56.
College attendance; New Jersey, 37, 41; Counties, 38; Factors affecting, Ch. II; Projections, 40 ff.
Colleges; New Jersey, 79; Out-of-state, 45; Preferences of students, 48, 51.
Community colleges, 48 f, 64.
Commuters, 49 ff, 64.
Compacts, Interstate and other, 67.
Costs; Building, 72; General, 70 ff; Operation, 71; Residential, 73.
Counties, 38, 50, 51.
Course preferences, 52 ff.
Criteria for programs, 61.

Degrees granted, New Jersey and nation, 13, 82.
Delayed entrants, 37, 83.
Desegregation, 31, 32.

Education; Income and, 35; Level of, 14, 23; Role of, 27, 28; Social change and, 27; Wealth and, 77 ff.
Engineering; Demand and facilities, 53; Need, 12, 28; Programs, 63, 64.
Enrollments (See College attendance); Colleges, 79; Delayed, 37, 83; Estimates, 40 ff, Ch. III.

Facilities (See type headings); Available, 46 ff; Costs see Ch. V; Deficits, 47; Expansions, 47; Imbalances, 48 ff; In-state, 46; Out-of-state, 45.
Faculty (See Staff).
Family patterns and higher education, 15, 34 ff.
Fees, 66, 84.
Foreign born, 36.

Girls, proportion to college, 38.
Graduate study, 54 ff; Engineering, 64; Faculty, 62; Research, 63.
Guidance, 29, 67.

High school graduates; College intention, 39; Competence, 30; Enrollments, 37; New Jersey, 14.
Housing, 17.
Income; Per capita, 14; College attendance and, 34; Education and, 35; New Jersey projected, 70.

Industry, 10 ff.
Intelligence; College attendance and, 29 ff; Deficits and, 57 ff.

Junior colleges (See Community colleges); Functions, 65; Preference, 51.

Medical profession, 26.
Migration (See Population); Children, 18; Population, 17 ff; Student, 45.

Non-residential colleges (See Community colleges).

Occupations, New Jersey and nation, 11 ff, 23.
Opportunity, educational, 57 ff.

Part-time enrollments, 38.
Population (See College-age population); Migration, 17 ff; New Jersey, 15; Projections, 19.
Price index, 70.
Private colleges; New Jersey, 49, 79, 82; Out-of-state, 45.
Proximity to college and attendance, 39.
Public colleges, New Jersey, 47, 81; Out-of-state, 45.

Research; Grants, 76; Laboratories, 11; Personnel, 12; Wealth, 77.
Residential facilities, 48 ff, 64, 72.

Scholarships, 33, 67.
Science (See Research), 23, 28.
Space utilization, 68.
Staff, 62, 68.
State University, 62 ff, 81, 82, 84.

Taxes, 74.
Teachers (See Staff); Demand, 52; Education, 64; Colleges, 62.
Technicians, 26.
Technology, 24 ff.
Tuitions, 66, 84.

Urbanization, 10, 23.